60459840

CONTROL DATA CORPORATION

# NOS VERSION 2 ADMINISTRATION HANDBOOK

CDC® OPERATING SYSTEMS:
CYBER 180
CYBER 170
CYBER 70
MODELS 71, 72, 73, 74
6000

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- CYBER 180
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# NOS Version 2
# Administration Handbook

**This product is intended for use only as described in this document. Control Data cannot be responsible for the proper functioning of undescribed features and parameters.**

Publication Number 60459840

# MANUAL HISTORY

| Revision | System Version | PSR Level | Date |
|---|---|---|---|
| A | 2.3 | 617 | October 1984 |
| B | 2.4.2 | 642 | September 1985 |
| C | 2.5.1 | 664 | September 1986 |
| D | 2.6.1 | 700 | April 1988 |
| E | 2.7.4 | 797 | June 1992 |

Revision E of this manual, printed June 1992, reflects NOS 2.7.4 at PSR level 797. Miscellaneous editorial and technical corrections have been made.

Revision letters I, O, Q, S, X, and Z are not used.

# PREFACE

This manual describes how to control the operation of CONTROL DATA® Network Operating System (NOS) Version 2. NOS provides network capabilities for interactive and transaction processing in addition to local and remote batch processing.

NOS 2 operates on the following computer systems:

CONTROL DATA CYBER 180 Computer Systems
Models 810, 830, 835, 840, 845, 850, 855, 860, 960, 970, 990, 994, and 995

CONTROL DATA CYBER 170 Computer Systems
Models 171, 172, 173, 174, 175, 176, 720, 730, 740, 750, 760, 815, 825, 835, 845, 855, 865, and 875

CONTROL DATA CYBER 70 Computer Systems
Models 71, 72, 73, and 74

CONTROL DATA 6000 Computer Systems

## AUDIENCE AND ORGANIZATION

This manual is written for system administrators. Section 1 introduces the user validation and accounting capabilities of NOS. Section 2 describes user validation in detail. This section also contains examples of the use of MODVAL. Section 3 describes user accounting and the special system file PROFIL. Section 4 describes resource accounting. Section 5 describes account dayfile messages. Section 6 describes problem reporting.

## CONVENTIONS

Technical changes are indicated by bars in the margins.

Unless otherwise stated, it is assumed that you are in the batch subsystem when you enter commands from an interactive terminal.

Some of the CYBER 170 Computer Systems share many of the functional and architectural attributes of the CYBER 180 Computer Systems. Specifically, CYBER 170 Models 815, 825, 835, 845, and 855 fall into this category. It is sometimes convenient to refer to the CYBER 180 models and these CYBER 170 models collectively. This manual uses the term 180-class mainframes to refer to this collection.

Extended memory for model 176 is large central memory extended (LCME). Extended memory for the 180-class mainframes and the models 865 and 875 is unified extended memory (UEM). Extended memory for models 865 and 875 may also include extended core storage (ECS) or extended semiconductor memory (ESM). Extended memory for all other NOS computer systems is either ECS or ESM. ECS and ESM are the only forms of extended memory that can be shared in an ECS multimainframe complex and can be accessed by a distributive data path (DDP).

In this manual, ECS refers to both ECS and ESM. The term extended memory, unless otherwise noted, refers to all forms of extended memory.

Programming information for the various forms of extended memory is in the COMPASS Version 3 Reference Manual and in the appropriate computer system hardware reference manual.

Interpret uppercase characters within command formats literally. Lowercase characters are variables and are described immediately following the line that shows the command format.

## SUBMITTING COMMENTS

The last page of this manual is a comment sheet. Use the comment sheet to suggest specific improvements for the manual and to report any errors. If the comment sheet has already been used, you can mail your comments to:

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Technical Publications ARH219
4201 Lexington Avenue N.
St. Paul, MN 55126-6198

If you have access to SOLVER, an online problem reporting facility, you can use it to submit comments about the manual. Use NS2 as the product identifier.

## CENTRAL SOFTWARE SUPPORT

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## RELATED PUBLICATIONS

The following is a list of NOS operating system manuals and NOS product set reference manuals.

Control Data also publishes a Software Publications Release History of its software manuals and revision packets. This history lists the revision level of each manual that corresponds to a given level of software installed at a site.

Control Data manuals are available through Control Data sales offices or through Literature and Distribution Services:

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4201 Lexington Avenue N.
St. Paul, MN 55126-6198

You should be thoroughly familiar with the material in the following publications:

| Control Data Publication | Publication Number |
|---|---|
| NOS Version 2 Operations Handbook | 60459310 |
| NOS Version 2 Reference Set, Volume 2<br>Guide to System Usage | 60459670 |
| NOS Version 2 Reference Set, Volume 3<br>System Commands | 60459680 |

The following publications provide additional information about NOS and its product set.

| Control Data Publication | Publication Number |
|---|---|
| CDCNET Configuration and Site Administration | 60461550 |
| CDCNET Network Operations | 60461520 |
| COMPASS Version 3 Reference Manual | 60492600 |
| Message Control System Version 1 Reference Manual | 60480300 |
| Network Access Method Version 1<br>Network Definition Language Reference Manual | 60480000 |
| NOS Version 2 Analysis Handbook | 60459300 |
| NOS Version 2 Applications Programmer's Instant | 60459360 |
| NOS Version 2 Diagnostic Index | 60459390 |
| NOS Version 2 Full Screen Editor User's Guide | 60460420 |
| NOS Version 2 Installation Handbook | 60459320 |
| NOS Version 2 Reference Set, Volume 1<br>Introduction to Interactive Usage | 60459660 |
| NOS Version 2 Reference Set, Volume 4, Program Interface | 60459690 |
| NOS Version 2 Screen Formatting Reference Manual | 60460430 |

| Control Data Publication | Publication Number |
|---|---|
| NOS Version 2 Security Administrator's Handbook | 60460410 |
| NOS Version 2 System Overview | 60459270 |
| NOS Version 2 Systems Programmer's Instant | 60459370 |
| NOS Version 2 Tape Management System (TMS) Site Operations Manual | 60463350 |
| NOS Version 2 Tape Management System (TMS) User Reference Manual | 60463110 |
| Remote Host Facility Access Method Reference Manual | 60459990 |
| Remote Batch Facility Version 1 Reference Manual | 60499600 |
| 19003 System Console CC596A Hardware Operation/Maintenance Guide | 60463610 |

You might also want to consult the NOS System Information Manual. It is an online manual that includes brief descriptions of all NOS and NOS product manuals. You can access this manual by logging into NOS and simply entering the command EXPLAIN.

## DISCLAIMER

NOS and its product set are intended to be used only as described in this document. Control Data cannot be responsible for the proper functioning of undescribed features or parameters.

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## FIGURES



## TABLES

# INTRODUCTION 1

The user validation and user accounting capabilities of NOS are based on two special system files, VALIDUs and PROFILa. In this manual, the user validation and accounting files are referred to as VALIDUs, VALINDs, and PROFILa. Table 1-1 lists file names that correspond to the appropriate operating system levels.

VALIDUs controls user validation, including the following:

- Identification of users
- Identification of resources available to users
- Limitation of job resource usage

PROFILa controls user accounting, including the following:

- Identification of accounting file users
- Assignment of accounting parameters
- Scheduling of system access
- Limitation of total resource usage

As the structures of the user validation file and user accounting file change, concurrent file name changes can also occur to make it easier for sites to convert from one system to another.

Table 1-1. Validation and User Accounting File Names

| System | User Validation File | User Indexes File | User Accounting File |
|---|---|---|---|
| NOS 2.0, 2.1 | VALIDUZ | VALINDZ | PROFILB |
| NOS 2.2 | VALIDUS | VALINDS | PROFILC |
| NOS 2.3 | VALIDUS | VALINDS | PROFILC |
| NOS 2.4.1 and later | VALIDUS | VALINDS | PROFILC |

VALIDUs contains user names. PROFILa contains charge and project numbers. User names identify the user, the user's permanent files, and the user's resource limitations. Charge and project numbers control and record billing charges.

To initialize the user validation file, use the GENVAL command described in section 2. To initialize the user accounting file, see section 3.

The billing unit that reflects the resources used by the system during a job or a session is called the system resource unit (SRU). SRU calculations allow balancing the use of resources. Section 4 describes the SRU formula. The parameters for SRU computation are related to the charge and project numbers. The PROFILa file contains indexes to determine the SRU computation parameters to be used while a charge and project number are in effect for the job or session.

Section 5 gives the history of system usage. Section 6 explains how to report software problems to Control Data.

# USER VALIDATION 2

The VALIDUs file is a special system file maintained as a direct-access permanent file under user name SYSTEMX (user index $377777_8$). The seventh character of the name VALIDUs (represented by a lowercase s) varies from one operating system level to another. For the correct seventh character of VALIDUs refer to chapter 1.

The VALIDUs file is created by GENVAL and managed by MODVAL, and can be updated only from a console as a system origin job. In addition, in a secured system, update of VALIDUs requires security administrator privileges.

## GENVAL

The GENVAL command creates a VALIDUs file and a corresponding VALINDs file on a family device that does not already have a VALIDUs file. This is usually a family device that has just been initialized. The new VALIDUs file contains only the special user names (refer to Special User Names).

Enter GENVAL from the console by typing one of the following:

```
GENVAL,FM=familyname.      (under DIS)

   or

X.GENVAL(FM=familyname)    (under DSD)
```

The default family is used if the FM=familyname parameter is not specified. GENVAL aborts if a VALIDUs file currently exists under user index $377777_8$. After GENVAL creates the validation files, type one of the following commands to make the files fast-attach files (refer to System File Initialization in NOS Version 2 Analysis Handbook for more information on fast-attach files).

```
ISF,FM=familyname.      (under DIS)

   or

X.ISF(FM=familyname)    (under DSD)
```

After you complete this procedure, you can use MODVAL to add new user names to the VALIDUs file created.

## MODVAL VALIDATION FILE MANAGER

The validation file manager, MODVAL, can be executed from a system origin job or from a batch job. MODVAL can directly update the VALIDUs file only from a system origin job (using input directives or the K display). When run from a batch job, MODVAL cannot access the VALIDUs file. Either a copy of the new file or a directive file is established as a local file and processed later by a system origin job to update the VALIDUs file.

## MODVAL CONSOLE INPUT

You can use the console options (DSD or DIS) to access VALIDUs with MODVAL according to the following general procedure. For our discussion, we will assume that you are under DSD. If you are under DIS, you do not have to type X.

1. Type:

   B,O.

   AB.

   X.MODVAL.

2. The B,O display appears on the right screen. Note the job sequence name that is assigned to MODVAL. To the right of this entry, the following intensified message appears:

   REQUEST *K* DISPLAY

3. Type:

   K,jsn.

   where jsn is the job sequence name shown on the B,O display.

4. The first MODVAL display appears on the left screen. It is a listing of the options available for manipulating the validation file VALIDUs (refer to figure 2-1).

5. Type in one of the following five console options available on the left screen. All of the batch input directives (refer to MODVAL Batch Input) are also available for console input. In addition, the following are provided specifically for console input. All directive entries must be prefixed by K and a period (K.). All examples in this section show K., although you may not have to type it, since it will remain on the screen after a carriage return.

| Options | Description |
|---|---|
| K.C,username | Create option. The user name username is added to the VALIDUs file. At this point, enter input directives to set the characteristics of this user name. |
| K.DEL,username | Delete option. The user name username is deleted from the existing VALIDUs file. No further action is needed for this option. The user executing MODVAL cannot be the username deleted with this option. Permanent files associated with this username are not purged until a reformat of the VALIDUs file is done (MODVAL, OP=R). |
| K.I,username | Inquire option. Information for user name username is displayed on the second MODVAL display (refer to figure 2-3). You cannot use this option for data entry. |
| K.U,username | Update option. The user name username must be on the existing VALIDUs file. Enter input directives to update the characteristics of this user name. |

| Options | Description |
|---|---|
| K./username, parameter=value | Use this slant (/) directive to update username as you do with the U option; however, if username is not found, a new user name is created automatically. It is possible under this option to switch control directly from one user name to another without returning to the initial MODVAL display (refer to figure 2-1). If you use the / directive exclusively, input is analogous to batch input; that is, you can enter the parameter specification on the same line as username. |

6. For a create, inquire, or update option, the second MODVAL display (refer to figure 2-3) replaces the first on the left screen.

   Enter KK. to bring up the list of instructions on the right screen (refer to figure 2-2).

   If you enter a create option (either by C or /), the new user name will appear with default values for the parameters. If the directive is included with the slant (/), it will appear on the display but will not, at this point, be entered on the file.

   If you enter an update option (either by U or /), the existing user name will appear with current parameters. If a modification directive is included with a / input, the new value will appear on the screen but will not be entered on the file. From here, you will have to go to step 7.

   If you enter an inquire option (K.I,username), the display will show the information requested, and the procedure will stop at this step. Enter K.END to return to the first MODVAL display (refer to figure 2-1) and to enter more user names and their associated parameters.

7. For a C or U option, type in the directive in with the format:

   K.parameter=value

8. To cause the changes made by the create and update options to be written to the validation file, type:

   K.END

   If you do not want these changes to be made on the validation file, type:

   K.DROP

   To terminate the run without updating the validation file, type:

   K.STOP

   In the case of DROP or END, the first MODVAL display (refer to figure 2-1) will return to the left screen, and you can enter more user names and their associated parameters or enter K.END to terminate the run.

   Table 2-1 summarizes the basic input for console options.

Table 2-1. Input for Console Options

| Create | Delete | Inquire | Update |
|---|---|---|---|
| K.C,username | K.D,username | K.I,username | K.U,username |
| K.parameter=value | K.END | K.END† | K.parameter=value |
| K.END† | | | K.END† |
| or | | | or |
| K./username | | | K./username |
| K.parameter=value | | | K.parameter=value |
| K.END† | | | K.END |

†At this point, enter K.END to terminate MODVAL, or enter another console option.

```
K.  MODVAL.          JSN


                                MODVAL

    VALIDUS      CREATED   yy/mm/dd.    UPDATED   yy/mm/dd.

INPUT DIRECTIVES ARE THE SAME AS BATCH INPUT DIRECTIVES.
THE FOLLOWING DIRECTIVES ARE ALSO PROVIDED -

   DIRECTIVE                      DESCRIPTION

      C,UN          CREATE OPTION.  THIS DISPLAY ONLY.
      DEL,UN        DELETE OPTION.  THIS DISPLAY ONLY.
      I,UN          INQUIRE OPTION.  THIS DISPLAY ONLY.
      U,UN          UPDATE OPTION.  THIS DISPLAY ONLY.
      /UN           TERMINATE INPUT FOR PRESENT USER NAME IF ANY,
                    UPDATE VALIDUS FILE.  INITIATE ACTION ON *UN*.

UN = 1-7 CHARACTER USER NAME.

K.END FROM THIS DISPLAY ENDS THE MODVAL RUN.
```

Figure 2-1. First MODVAL Display, Left Screen

```
K.  MODVAL.          JSN


K OISPLAY COMMANDS                                    PAGE 1 OF 3

     DROP   TERMINATE INPUT FOR ACTIVE USER.
     END    COMPLETE UPDATE OR INQUIRE OF ACTIVE USER.  FROM
            INITIAL OISPLAY, END RUN.
     STOP   TERMINATE INPUT FOR ACTIVE USER, IF ANY.  END RUN.

     /UN    TERMINATE INPUT FOR PRESENT USER NAME AND UPDATE
            VALIDUS FILE.  INITIATE ACTION ON *UN*.
     +      PAGE LEFT OISPLAY FORWARD.
     -      PAGE LEFT DISPLAY BACKWARD.
     (      PAGE RIGHT DISPLAY FORWARD.
     )      PAGE RIGHT DISPLAY BACKWARD.

PARAMETER INPUT

   DATA ENTRY FORMAT IS OF THE FORM MT=XX,CM=XX,TL=XX, ETC.
   ALL NUMERIC FIELDS ARE ASSUMED TO BE DECIMAL UNLESS A
   POSTRADIX IS SPECIFIED.  FOR EXAMPLE - 4000B




K.
```

Figure 2-2. MODVAL Display, Right Screen (sheet 1 of 3)

```
K.  MODVAL.          JSN


MODVAL IDENTIFIERS                                    PAGE 2 OF 3

AW - ACCESS WORD (LEFT FROM BIT 0)

   CPWC,CTPC,CLPF,CSPF,CSOJ,CASF,CAND
   CCNR,CSRP,CSTP,CTIM,CUCP,CSAP,CBIO
   CPRT,CPLK,CQLK,CUST,CNVE,CMNT,CNOP
   CSAF,CNRD,COPR,CLTD,COPI,CACA,CPAM
   CSAU,CRAU,CRAF

SO - REMOTE TERMINAL PROGRAM (LEFT FROM BIT 0)

   CCLM,BCSM,TCSM,SLID,GLID,LFID,ABTM

UC - SERVICE CLASS (LEFT FROM BIT 1)

   SY,BC,RB,TS,DI,NS,SS,MA,CT,IO,I1,I2,I3

SAL - SECURITY ACCESS LEVEL (LEFT FROM BIT 0)

   LVL0,LVL1,LVL2,LVL3
   LVL4,LVL5,LVL6,LVL7


K.
```

Figure 2-2. MODVAL Display, Right Screen (sheet 2 of 3)

```
K.  MODVAL.          JSN


MODVAL IDENTIFIERS                                    PAGE 3 OF 3

SAV - SECURITY PRIVILEGE (RIGHT FROM BIT 59)

   CSAP,COLD,CPWX,CFPX,CLJL,CLFL,CWLF,CULT

SAC - SECURITY ACCESS CATEGORY (LEFT FROM BIT 0)

   CAT00,CAT01,CAT02,CAT03,CAT04,CAT05,CAT06
   CAT07,CAT08,CAT09,CAT10,CAT11,CAT12,CAT13
   CAT14,CAT15,CAT16,CAT17,CAT18,CAT19,CAT20
   CAT21,CAT22,CAT23,CAT24,CAT25,CAT26,CAT27
   CAT28,CAT29,CAT30,CAT31




K.
```

Figure 2-2. MODVAL Display, Right Screen (sheet 3 of 3)

```
K. MODVAL.          JSN


USER   KTEST                                          PAGE 1 OF 5

  CREATED   yy/mm/dd.                    UPDATED   yy/dd/mm.

       CONTENTS      DESCRIPTION

  UI = 373737B       USER INDEX (1-377777B).
  AL = 15B           APPLICATION ACCESS LEVEL (1-17B).
  MT = 4             MAGNETIC TAPES (0-7).
  RP = 0             REMOVABLE PACKS (0-7).

       CONTENTS      VALUE     DESCRIPTION

  CM = 76B          ( 3737B)   CENTRAL MEMORY FL (0-77B).
  EC = 12B          (  240B)   EXTENDED MEMORY FL (0-77B).
  LP = 75B          ( 62976)   LINES PRINTED (0-77B).
  MS = 74B          (246272)   MASS STORAGE PRUS (0-77B).
  SL = 71B          (208000)   SRU LIMIT (0-77B).
  TL = 50B          ( 20544)   TIME LIMIT (0-77B).


      I,KTEST.


K.
```

Figure 2-3. Second MODVAL Display, Left Screen (sheet 1 of 5)

```
K.  MODVAL.          JSN


USER   KTEST                                          PAGE 2 OF 5

       CONTENTS       VALUE     DESCRIPTION

  CP = 20B          (  1024)    CARDS PUNCHED (0-77B).
  PT = 52B          ( 43520)    UNITS PLOTTED (0-77B).
  CC = 73B          (  1008)    COMMANDS (0-77B).
  DF = 67B          (   944)    DAYFILE MESSAGES (0-77B).
  DB = 3            (     6)    DEFERRED BATCH (0-7).
  DT = 45B          (    37)    DETACHED JOBS (0-77B).

  CS = 5            ( 20480)    INDIRECT ACCESS FILE SPACE (0-7).
  DS = 6            ( 32768)    DIRECT ACCESS FILE SIZE (0-7).
  FC = 2            (    16)    PERMANENT FILE COUNT (0-7).
  FS = 1            (     8)    INDIRECT ACCESS FILE SIZE (0-7).

  AW = 0000000000177777777      ACCESS WORD (4 CHARACTERS).
  CN = 1282                     CHARGE NUMBER (1-10 CHARACTERS).
  PN = 73CD5923                 PROJECT NUMBER (1-20 CHARACTERS).
  PID =                         PERSONAL ID (0-20 CHARACTERS).



K.
```

Figure 2-3. Second MODVAL Display, Left Screen (sheet 2 of 5)

```
K.  MODVAL.          JSN


USER   KTEST                                          PAGE 3 OF 5

       CONTENTS      DESCRIPTION

  SH =               SHELL PROGRAM NAME (1-7 CHARACTERS).
  SO = 12B           SHELL PROGRAM OPTIONS (4 CHARACTERS).
  SP = 0B            SYSTEM PROLOGUE FILE INDEX (1-77B).
  UP =               USER PROLOGUE FILE NAME (1-7 CHARACTERS).

  UC = BCSYTS        DEFAULT SERVICE CLASS FOR ORIGIN TYPES
                     BC,RB,IA (2 OR 4 CHARACTERS).
  VM = 26B           VALIDATION MASK (2 CHARACTERS).

  IS = BATCH         INITIAL SUBSYSTEM (4-8 CHARACTERS).
  PA = ODD           TERMINAL PARITY (EVEN OR ODD).
  PX = FULL          TRANSMISSION (FULL OR HALF).
  RO = 23            RUBOUTS (0-31).
  TC = ASCII         CHARACTER SET (ASCII OR NORMAL).
  TT = 713           TERMINAL TYPE (3-7 CHARACTERS).



K.
```

Figure 2-3. Second MODVAL Display, Left Screen (sheet 3 of 5)

```
K.  MODVAL.          JSN


USER   KTEST                                        PAGE 4 OF 5

       CONTENTS      DESCRIPTION

                     PASSWORDS MUST BE 4-7 CHAR.
 XB =                BATCH PASSWORD EXPIRATION DATE (YYMMDD).
 XI =                INTERACTIVE PASSWORD EXPIRATION DATE
                     (YYMMDD).

 SAL = 377B          SECURITY ACCESS LEVELS (1-7 CHAR).
 SAV = 7760B         SECURITY ACCESS PRIVILEGES (4 CHAR).
 SAC = 037777777777  SECURITY ACCESS CATEGORIES (1-7 CHAR).
 SC =  UNLIMITED     SECURITY COUNT (0-77B).




K.
```

Figure 2-3. Second MODVAL Display, Left Screen (sheet 4 of 5)

```
K. MODVAL.          JSN


USER  KTEST                                          PAGE 5 OF 5

    STATUS   APPLICATION      STATUS    APPLICATION

      ON       IAF             ON        RBF
      ON       TAF             ON        MCS
      ON       TVF             ON        CS
      ON       CYBIS           ON        ITF
      ON       TLF             ON        NJF
      ON       NETOU           OFF       PSU
      ON       AP1             ON        AP2
      ON       AP3             OFF       VEIAF
      ON       NPF             OFF       TCF
      ON       AP4             ON        AP5
      ON       AP6             OFF       ATF


K.
```

Figure 2-3. Second MODVAL Display, Left Screen (sheet 5 of 5)

## MODVAL BATCH INPUT

Batch jobs that use MODVAL cannot access the VALIDUs file, resident on user name SYSTEMX. Refer to Examples of MODVAL Use, example 15, which explains how to update VALIDUs by creating a file of batch input directives that are automatically used by a system origin job as MODVAL input.

MODVAL uses the following files in batch processing.

| Default Name | Use |
|---|---|
| INPUT | File containing the input data directives used to create or update the validation file VALIDUs. |
| NEWVAL | Interim copy of the new validation file to be created or reformatted. |
| VALIDUs | Old validation file to be updated or reformatted. |
| SOURCE | File that receives the source input for each user name. |
| VALINDs | File containing all the available user indexes for the present VALIDUs file. VALINDs is always used in conjunction with the validation file N=NEWVAL or P=VALIDUs (refer to MODVAL Command). |
| OUTPUT | File that receives output listings. |

## MODVAL COMMAND

Access the MODVAL validation file manager with the MODVAL command. The following is the command format.

MODVAL,$p_1$,$p_2$,...,$p_n$.

where each parameter is a keyword or a keyword equated to a value.

| $p_i$ | Description |
|---|---|
| CV=option | Specifies the conversion options used when converting from a previous version of a NOS validation file to a NOS 2.6.1 validation file. |

| Option | Description |
|---|---|
| A | Use this conversion option with OP=C to convert from a pre-NOS 2.0 level 562 validation file to a NOS 2.2 level 596 validation file. During the creation run, the input directive parameter TC=STANDARD is converted to TC=NORMAL. |
| C | Use this conversion option with OP=C to convert from a pre-NOS 2.3 level 617 validation file to a NOS 2.3 level 617 validation file. During the creation run, the input directive parameter AW=CNRD validates all users for charge and project number other than default. |
| D | Use this conversion option with OP=C to convert from a pre-NOS 2.3 level 617 validation file to a NOS 2.3 level 617 validation file. During the creation run, the input directive parameter AW=COPR validates all newly created users for password without randomization. |
| F | Use this conversion option with OP=C to convert from a pre-NOS 2.2 level 596 validation file to a NOS 2.2 level 596 validation file. During the creation run, the input directive parameter AW=NUL is converted to AW=NUL,AW=CSAF to force setting the alternate family permission. |
| G | Use this conversion option with OP=C to convert from a pre-NOS 2.5.1 level 664 validation file to a NOS 2.5.1 level 664 validation file. During the creation run, the input directive parameter AW=COPI is automatically inserted so users need not enter a personal identification during interactive login. |
| H | Use this conversion option with OP=C to convert from a pre-NOS 2.5.1 level 664 validation file to a NOS 2.5.1 level 664 validation file. During the creation run, the input directive parameter AW=CACA is automatically inserted to allow users to log in to more than one terminal at a time. |
| J | Use this conversion option with OP=C to convert from a pre-NOS 2.5.1 level 664 validation file to a NOS 2.5.1 level 664 validation file. During the creation run, the input directive parameter AW=IAF automatically inserts an AP=VEIAF directive to validate the user for the VEIAF network application. |

| $p_i$ | Description |
|---|---|

CV=option

| Option | Description |
|---|---|
| K | Use this conversion option with OP=C to convert from a pre-NOS 2.7.3 level 780 validation file to a NOS 2.7.3 level 780 validation file. During the creation run, the input directive parameters AW=CSAU and AW=CRAU are automatically inserted to allow the user to specify an alternate user name on secondary USER commands and on USER commands in files routed with an input disposition. Also, the input directive AW=CSAF automatically inserts an AW=CRAF directive to allow the user to specify an alternate family name on USER commands in files routed with an input disposition. If CV=F was also specified, an AW=CRAU directive is inserted. |

**NOTE**

More than one conversion option can be selected at a time. Thus, the directive CV=FGH is valid.

| | |
|---|---|
| D | Indicates MODVAL does not abort when directive errors are detected. |
| FA | Forces an attachment of VALIDUs and VALINDs for system origin type jobs (for option OP=S, U, or R). In a secured system, use of this parameter requires security administrator privileges. |
| FM=familyname | Name of the family the user wants MODVAL to access. You can specify this option only from a system origin job. The default is the family under which the job is currently running. |
| I=infile | Local file name of the file that contains input data or source data. Default is INPUT. |
| L=outfile | File that receives list output. Default is OUTPUT. |
| N=newfile | Local file name of the interim file that becomes the newly created or reformatted validation file. Default is NEWVAL. |
| OP=C | Create option. Processes the input file and creates the interim validation file (N=NEWVAL) and the file of associated user indexes (U=VALINDs). |
| OP=C,LO=E | Initiates the create (OP=C), then lists the errors encountered in processing. |
| OP=C,LO=EN<br>or<br>OP=C,LO | Produces a list of errors for the create processing. |
| OP=K | K display option. All other options (multiple OP specifications) are cleared, and you must enter instructions using the K display |

| $p_i$ | Description |
|---|---|
| | OP=K is valid only for system origin jobs. The system files VALIDUs and VALINDs are automatically attached (the FA parameter is not necessary). In a secured system, use of this parameter requires security administrator privileges. |
| OP=K | For a system origin job, if no parameters are specified and the call is<br><br>MODVAL.<br><br>the K display option is automatically selected. If parameters are not specified, OP=U is the default. |
| OP=L or OP=L,LO=A | Reads the validation file, sorts the copy by user name, and writes it to the output file for listing according to the format in figure 2-4. |
| OP=L,LO=AL | Same as LO=L, since A is a default value. |
| OP=L,LO=EN<br>or<br>OP=L,LO | File is sorted by user index. |

```
MODVAL,OP=L,LO=N.                    yy/mm/dd. hh.mm.ss.   PAGE     1

USER        USER      CREATION   LAST MOD
NAME        INDEX       DATE       DATE

USERAAA         1    77/06/15.  81/06/21.
USERBBB        10    79/04/04.  79/04/04.
USERCCC       130    77/06/15.  78/02/14.
USERDDD       260    81/10/08.  81/10/08.
USERXYZ      4263    81/08/07.  81/08/07.
LIBRARY    377776    77/06/15.  78/04/13.
SYSTEMX    377777    77/06/15.  78/04/13.
```

Figure 2-4. Format of VALIDATION File Listing

| $P_i$ | Description |
|---|---|
| OP=L,LO=L | Reads the information on the local file identified in the parameter list, sorts by user name, and writes it to the output file for listing according to the format in figure 2-4. |
| OP=L,LO=N | Reads the validation file, sorts the copy by user index, and writes it to the output file for listing according to the format in figure 2-4. |
| OP=L,LO=NL | Reads the information on the local file identified in the parameter list, sorts the copy by user index, and writes it to the output file for listing according to the format in figure 2-4. |
| OP=R | Reformats the validation file and purges all files of each deleted user. Until this option is selected, all files of deleted users remain in the permanent file system even though they cannot be accessed. This allows a user to be redefined (with UI parameter on input directive) if an error occurs in deleting the user. |
| OP=S | Specifies a source run that returns the validation file specified by the P parameter (default=VALIDUs) to source format (directive images) on the file specified by the S parameter (default=SOURCE). |

**NOTE**

When file VALIDUs is converted to source code to be upgraded to a newer level of NOS, the MODVAL command should first be executed with the OP=R parameter specified, so that any files remaining from deleted usernames are purged. If OP=R is not executed first, these orphaned files in the permanent file system may never be deleted, because VALIDUs will contain no record of them or their user indices.

| | |
|---|---|
| OP=U | Update option. Updates the local copies of VALIDUs and VALINDs with data on the input file. Prevents rerunning the job and toggling the validation bits twice. You can use this option with certain other options (for example, OP=URS). It is the default option for a nonsystem origin job or a system origin job for which at least one parameter is specified on the MODVAL command. |

| $P_i$ | Description |
|---|---|
| OP=U,LO=E | Initiates the update (OP=U) and then lists the errors encountered in processing. |
| OP=U,LO=EN<br>or<br>OP=U,LO | Produces a list of errors for the update processing. |
| OP=Z | Command line update option. Similar to the update option except that directives are included on the MODVAL command. |
| OP=Z,LO=E | Initiates the command line update (OP=Z), then lists the errors encountered in processing. |
| OP=Z,LO=EN<br>or<br>OP=Z,LO | Produces a list of errors for the command line update processing. |
| P=oldfile | Local file name of the copy of the old validation file to be updated or reformatted. Default is VALIDUs. |
| RP | Indicates that passwords may be any length up to seven characters (regardless of how the COMSACC RPWL is set), and that passwords do not have to be specified when creating a user. Use RP only if the input file was created using an OP=S run on an existing user validation file containing passwords shorter than the installation-required minimum. |
| S=sourcefile | File that receives source data for each user name. Default is SOURCE. |
| SI | Specifies that the input for a create run (OP=C) is generated by a previous source run (OP=S). User names with duplicate user indexes are created if they exist on the source file. Automatic creation of special user names is suppressed. (Special user names are defined later in this chapter.) Do not use this parameter to create a validation file in a secured system. |
| U=userfile | File containing the available user indexes of the current VALIDUs file. Default is VALINDs. |

## INPUT DIRECTIVES

An input directive enters user names under a create run (OP=C) and modifies existing user names under an update run (OP=U). The format of the input directive is

/username,$parameter_1$=$value_1$,$parameter_2$=$value_2$,...

where username is the one- to seven-character user name referenced, and $parameter_i$=$value_i$ is a system usage definition for this name. Valid characters for username are A through Z, 0 through 9, and *. The user name parameter must begin with a / in column 1. The user name and all other parameters must end with a separator.

Valid separators include any character whose 6-bit display code value exceeds $44_8$ (except -, /, =, and blank), as well as end-of-line. Thus, if an input directive parameter is last on an input directive, no other separator need follow it. An asterisk (*) can separate all parameters except user names, charge numbers, and project numbers.

All parameters relative to a user name must appear before you enter another user name or end the input stream.

All data within a user name entry is free format to column 72. A parameter cannot be split between cards or lines, but a directive can be split. Blanks are ignored. To allow sequencing and identification of input directives, all data past column 72 is ignored.

Example:

The following is acceptable. The directive can be split between two lines.

```
/ROBERTR,AW=CSPF

AW=CLPF
```

Example:

The following is not acceptable. A parameter is split between two lines.

```
/ROBERTR,AW=CSPF,AW=

CLPF.
```

A list of the allowable parameters and their descriptions follows. In the descriptions, bit 0 is the rightmost bit in a word.

| Parameter | Description |
|---|---|
| AL=al | Application access level. al is a one- or two-digit number in the range 0 through $17_8$. This parameter defines the highest-level path over which the user can make an application-to-application connection. The path access level for an application-to-application connection path is specified in the OUTCALL statement that defines the path (refer to Network Definition Language Reference Manual). By default, AL is set to zero. |
| AP=appl | Application validation. appl is a one- to seven-character application name that toggles a particular bit in the application permission field (bits 47 through 0) of the application validation word. If more than one application corresponds to a single bit, any of the application names for that bit may be specified for appl. For each bit that is set, a specific application or set of applications is accessible to the user. Blanks are suppressed. |

Parameter

Description

The following application permission bits are defined in the application validation word.

| appl | Bit | Description |
|---|---|---|
| IAF | 0 | Interactive Facility. |
| RBF | 1 | Remote Batch Facility. |
| TAF | 2 | Transaction Facility. |
| MCS | 3 | Message Control System. |
| TVF | 4 | Terminal Verification Facility. |
| CS | 5 | Communication supervisor. A user validated for this application can become a diagnostic operator and (if also validated for permission bit CNOP) a network operator. (Refer to the NOS Version 2 Analysis Handbook for information concerning the network operator and communication supervisor.) |
| CYBIS | 6 | CYBIS Education Facility. |
| ITF | 7 | Interactive Transfer Facility. |
| TLF | 8 | TIELINE Facility. |
| NJF | 9 | Network Job Entry Facility. |
| NETOU | 10 | Network Operator Utility. |
| PSU | 11 | Printer Support Utility. |
| AP1 | 12 | Local application 1. |
| AP2 | 13 | Local application 2. |
| AP3 | 14 | Local application 3. |
| VEIAF | 15 | NOS/VE Interactive Facility. |
| NPF | 16 | Network Passthru Facility. |
| TCF | 17 | Terminal Cluster Facility. |
| AP4 | 18 | Local application 4. |
| AP5 | 19 | Local application 5. |
| AP6 | 20 | Local application 6. |
| ATF | 21 | Automatic Tape Facility. |
| --- | 22-35 | Reserved for Control Data. |
| --- | 36-47 | Reserved for installation. |

| Parameter | Description |
|---|---|
| | The Network Validation Facility is automatically available to all Network Access Method (NAM) users; hence, no bit position is defined for this application. By default, no other applications are available to the user (bits 47 through 0 are zero).<br><br>To set or clear all application permission bits in the application validation word, specify the following for appl.<br><br>ALL Sets all application permission bits in the application validation word.<br><br>NUL Clears all application permission bits in the application validation word. |
| AW=perm | Access word validation. perm is a four-character designation that toggles a particular permission bit in the access word. For each bit that is set, special permission is given to that user. The bit is set when the parameter is first encountered, and it is cleared if the parameter is used again. A maximum of 36 entries per record is allowed. Blanks are suppressed.<br><br>The following permission bits are defined in the access word. |

| perm | Bit | Description |
|---|---|---|
| CPWC | 0 | User can change batch and interactive passwords. |
| CTPC | 1 | User can use the Access subsystem commands (terminal use only). Refer to the NOS Version 2 Reference Set, Volume 3, for a description of access subsystem commands. |
| CLPF | 2 | User can create direct access permanent files. |
| CSPF | 3 | User can create indirect access permanent files. |
| CSOJ | 4 | User can have system origin capability from any job origin if the debug option is turned on by the operator.<br><br>User can also assign a device by specifying its EST ordinal. This does not require that the debug option be turned on.<br><br>User can also call the PP hardware diagnostics of the 881/883 pack reformatting utility FORMAT if engineering mode is enabled. |
| CASF | 5 | User can access the system file (with the COMMON,SYSTEM command). |
| CAND | 6 | User can request nonallocatable devices (for example, magnetic tape units). |
| CCNR | 7 | User can use system without entering charge or project number. |

| Parameter | Description | |
|---|---|---|
| perm | Bit | Description |
| CSRP | 8 | User can issue removable auxiliary device commands. |
| CSTP | 9 | User has special TAF privileges of updating task libraries online. |
| CTIM | 10 | User is not logged off because of timeout. |
| CUCP | 11 | User can access system control point facility. |
| CSAP | 12 | User has special accounting privileges. (Refer to User Accounting for a description of special accounting user privileges.) |
| CBIO | 13 | User has batch input/output (BIO) subsystem privileges. (V carriage control character. Refer to NOS 2 Reference Set, Volume 3.) |
| CPRT | 14 | User can preserve extended memory (use PROTECT command). |
| CPLK | 15 | User can transfer permanent files between hosts. |
| CQLK | 16 | User can transfer queued files between hosts. |
| CUST | 17 | User can specify a logical identifier (ST=lid) of a mainframe on the job or ROUTE command and specify dlid/slid in the ROUTE or MFQUEUE parameter block. |
| CNVE | 18 | User can access the NOS Virtual Environment (NVE) subsystem. |
| CMNT | 19 | User has maintenance privileges. |
| CNOP | 20 | User can control network processing units (NPUs) - that is, a user who is validated for the CS application can also become a network operator. (Refer to the NOS Version 2 Analysis Handbook for information concerning the network operator.) |
| CSAF | 21 | User can specify an alternate family on secondary USER commands. |
| CNRD | 22 | User can specify a charge and project number other than the default (specified by CN and PN parameters). |

| Parameter | Description |
|---|---|

| perm | Bit | Description |
|---|---|---|
| COPR | 23 | User can specify a password without randomization. |
| CLTD | 24 | User is validated to specify preferred file residence as locked to disk on the SAVE, DEFINE, and CHANGE commands. |
| COPI | 25 | User need not enter his or her personal identification at interactive login. If this bit is not set, the user is prompted to enter a personal identification at interactive login. The user need not enter his or her personal identification if it is null. See the description on the PID directive for more information. |
| CACA | 26 | Allow concurrent interactive access. If this bit is not set, the user can only be logged in on interactive connection to this host. |
| CPAM | 27 | Using a non-system-origin job, the user can read system status information, such as the system dayfile,account file, and error log, if privileged analyst mode is enabled. (Privileged analyst mode is enabled by either the IPRDECK or a DSD command.) Privileged analyst mode cannot be enabled if the system is running in secured mode. |
| CSAU | 28 | User can specify an alternate user name on secondary USER commands. |
| CRAU | 29 | User can specify an alternate user name on the USER command in files routed with an input disposition. |
| CRAF | 30 | User can specify an alternate family on the USER command in files routed with an input disposition. |

By default, all new user names are created with CPWC, CLPF, CCNR, CSPF, CNRD, COPR, CSAF, COPI, CACA, CSAU, CRAU, and CRAF permissions, unless an AW parameter is entered. In this case, the user name is created with only these permissions specified.

| Parameter | Description |
|---|---|
| | To set or clear all permission bits in the access word, specify the following for perm.<br><br>ALL Sets all permission bits in the access word.<br><br>NUL Clears all permission bits in the access word. |
| CC=cc | Maximum number of batch commands processed for a user. cc consists of two numeric characters followed by a radix. Blanks are suppressed. The maximum value is $77_8$, which specifies unlimited batch command processing. If you omit this parameter, the system supplies a value of $34_8$. The system uses the formula<br><br>maximum batch commands = (cc x $100_8$) + KCCI<br><br>to calculate the limit of batch commands processed. (Refer to the NOS Version 2 Installation Handbook for a description of the COMSACC KCCI parameter.) |
| CM=cm | Maximum central memory space a user is allowed. cm consists of two numeric characters followed by a radix. Blanks are suppressed. The maximum value is $77_8$, which specifies all available central memory space of the machine. If you omit this parameter, the system supplies a value of $15_8$. The system uses the formula<br><br>central memory limit = (cm x $40_8$) + KCMI<br><br>to calculate the central memory space limit expressed in units of $100_8$ words. (Refer to the NOS Version 2 Installation Handbook for a description of the COMSACC KCMI parameter.) |
| CN=chargenumber | Charge number associated with the user. chargenumber is a one- to 10-character string. Valid characters are A through Z, 0 through 9, and *. When you use default CHARGE command (CHARGE,*), this value is used. If the user does not have CNRD privileges (not restricted to default charge number), this is the only charge number allowed for this user. |
| CP=cp | Number of cards that can be punched from a user's routed punch file. cp consists of two numeric characters followed by a radix. Blanks are suppressed. The maximum value is $77_8$, which specifies unlimited punched output. If you omit this parameter, the system supplies a value of 0. The system uses the formula<br><br>cards punched = (cp x $100_8$) + KCPI<br><br>to calculate the limit of cards punched from a routed file. (Refer to the NOS Version 2 Installation Handbook for a description of the COMSACC KCPI parameter.) |

| Parameter | Description |
|---|---|
| CS=cs | Cumulative size of all indirect access files for this user. The user is validated for the upper limit corresponding to the cs value specified. |

| cs | Upper Limit Allowed (Octal Count of PRUs) |
|---|---|
| 0 | Use job origin control |
| 1 | 1000 |
| 2 | 5000 |
| 3 | 50000 |
| 4 | 100000 |
| 5 | 200000 |
| 6 | 400000 |
| 7 | Unlimited |

If CS is not specified, CS=0 is assumed.

DAC=username — Delete user name. username is the user name to be deleted from the VALIDUs file. This user name must match the current user name as specified after the most recent /. Use this parameter only with update (OP=U) and K display options.

DB=db — Maximum number of executing jobs and queued input and output files the user is allowed to have in the system concurrently. db $\leq$ 7. If db=7, an unlimited number of queued files of executing jobs is allowed. All noninteractive jobs and queued input and output files are counted. If you omit this parameter, the system supplies a value of 0. The system uses the formula

$$jobs = 2^{db}$$

to calculate the limit of jobs. If db is zero, a value of zero is returned.

If the user has the permission bit CSOJ set and the system is in debug mode, or if the job is of system origin, the DB parameter is ignored and an unlimited number of jobs is allowed.

DF=df — Maximum number of MESSAGE requests the user can issue to the system and job dayfiles. df consists of two numeric characters followed by a radix. Blanks are suppressed. The maximum value is $77_8$, which specifies unlimited MESSAGE requests. If you omit this parameter, the system supplies a value of $34_8$. The system uses the formula

$$\text{maximum MESSAGE requests} = (df \times 100_8) + KDFI$$

to calculate the limit of job MESSAGE requests. (Refer to the NOS Version 2 Installation Handbook for a description of the COMSACC KDFI parameter.)

| Parameter | Description |
|---|---|
| DS=ds | File size allowed for an individual direct access permanent file. The user is validated for the upper limit corresponding to the ds value specified. |

| ds | Upper Limit Allowed (Octal Count of PRUs) |
|---|---|
| 0 | Use job origin control |
| 1 | 1000 |
| 2 | 5000 |
| 3 | 50000 |
| 4 | 100000 |
| 5 | 200000 |
| 6 | 400000 |
| 7 | Unlimited |

If DS is not specified, DS=0 is assumed.

DT=dt

Maximum number of detached jobs the user is allowed to have in the system concurrently. dt consists of two digits followed by a radix. Blanks are suppressed. The maximum value is $77_8$, which specifies that an unlimited number of detached jobs is allowed. If you omit this parameter, the system supplies a value of 0. The system uses the formula

detached jobs = dt + KDTI

to calculate the limit of detached jobs. (Refer to the NOS Version 2 Installation Handbook for a description of the COMSACC KDTI parameter.)

EB=password

Encrypted batch password. A 14-digit, octal encrypted password to be used for batch and system origin jobs.

EC=ec

Maximum extended memory space a user is allowed. ec consists of two numeric characters followed by a radix. Blanks are suppressed. The maximum value is $77_8$, which specifies all extended memory space of the machine. If you omit this parameter, the system supplies a value of 0. The system uses the formula

extended memory limit = (ec x $20_8$) + KECI

to calculate the extended memory limit expressed in units of $1000_8$ words. (Refer to the NOS Version 2 Installation Handbook for a description of the COMSACC KECI parameter.)

EI=password

Encrypted interactive password. A 14-digit, octal encrypted password to be used for interactive jobs.

| Parameter | Description |
|---|---|
| FC=fc | File count. fc is the maximum number of permanent files allowed to the user. The user is validated for the upper limit corresponding to the fc value specified. |

| fc | Upper Limit Allowed (Octal) |
|---|---|
| 0 | Use job origin control |
| 1 | 10 |
| 2 | 40 |
| 3 | 100 |
| 4 | 200 |
| 5 | 1000 |
| 6 | 4000 |
| 7 | Unlimited |

If you do not specify FC, FC=0 is assumed.

FS=fs

Maximum file size allowed for an individual indirect access permanent file. The user is validated for the upper limit corresponding to the fs value specified.

| fs | Upper Limit Allowed (Octal Count of PRUs) |
|---|---|
| 0 | Use job origin control. No controls are enacted. |
| 1 | 10 |
| 2 | 30 |
| 3 | 100 |
| 4 | 300 |
| 5 | 1000 |
| 6 | 2000 |
| 7 | Unlimited |

If you do not specify FS, FS=0 is assumed.

FUI=userindex

Force user index. userindex is the user index assigned to the user name specified after the most recent /, whether the user index is assigned to another user name or not. Use caution with this option because problems can occur when multiple user names are associated with the same user index. If the VALIDUs file is returned to source format (OP=S on MODVAL command) and a new VALIDUs file is created from this source, multiple user name per user index associations will be lost. Use this parameter only with update (OP=U) and K display options.

Since user indexes are usually thought of as octal values, be sure to add the radix B to indicate an octal value.

| Parameter | Description |
|---|---|
| IS=subsystem | Initial subsystem for the terminal. You may specify one of the following values for each user name. By default, the initial subsystem is NULL. |

| subsystem | Description |
|---|---|
| ACCESS | Access subsystem |
| BASIC | BASIC subsystem |
| BATCH | Batch subsystem |
| EXECUTE | Execute subsystem |
| FORTRAN | FORTRAN Version 5 subsystem |
| FTNTS | FORTRAN Extended Version 4 subsystem |
| NULL | Null subsystem |

LP=lp

Number of lines that can be printed from a user's routed print file. lp consists of two numeric characters followed by a radix. Blanks are suppressed. The maximum value is $77_8$, which specifies unlimited print output. If you omit this parameter, the system supplies a value of 0. The system uses the formula

lines printed = (lp x $2000_8$) + KLPI

to calculate the limit of lines printed from a routed output file. (Refer to NOS Version 2 Installation Handbook for a description of the COMSACC KLPI parameter.)

MS=ms

Maximum number of additional mass storage PRUs the user is allowed to allocate for a job. It applies to all file space written by the job, including direct access permanent files. ms consists of two numeric characters followed by a radix. Blanks are suppressed. The maximum value is $77_8$, which specifies unlimited additional mass storage PRUs. If you omit this parameter, the system supplies a value of 1. The system uses the formula

PRU limit = (ms x $10000_8$) + KMSI

to calculate the PRU equivalent of the actual mass storage tracks additionally allocated to the job files. (Refer to NOS Version 2 Installation Handbook for a description of the COMSACC KMSI parameter.)

**NOTE**

The job is charged for mass storage space one track at a time. When a new track is allocated to one of the job's files, the job is immediately charged for the entire track (even if the job does not actually write data onto the entire track). Thus, depending on the different track sizes of the devices you use, two jobs with identical mass storage validations may not be able to write the same number of PRUs.

MT=mt

Number of magnetic tapes allowed. mt $\leq$ 7. If mt=7, unlimited tapes are allowed. If you omit this parameter, the system supplies a value of 0.

| Parameter | Description |
|---|---|
| PA=pa | Terminal parity for Remote Diagnostic Facility users. The terminal operates with even or odd parity. One of the following values may be entered for each user name record. By default, PA is set to even parity. |

| pa | Description |
|---|---|
| EVEN | Terminal operates with even parity. |
| ODD | Terminal operates with odd parity. |

| | |
|---|---|
| PB=password | Batch password used for batch, remote batch, and system origin jobs. Its minimum length is set by the COMSACC installation parameter RPWL. Its maximum length is seven characters. The installation default for the RPWL parameter is four.<br><br>This parameter is processed in the same way as the PW parameter. However, it applies only to the batch password. |
| PI=password | Interactive password used for interactive jobs (login to any NAM application). Its minimum length is set by the COMSACC installation parameter RPWL. Its maximum length is seven characters. The installation default for the RPWL parameter is four.<br><br>This parameter is processed in the same way as the PW parameter. However, it applies only to the interactive password. |
| PID=personal id | A zero- to 20-character (letters A through Z, digits 0 through 9) personal identification. If the access word bit COPI is not set, the system prompts for the personal identification after the password during login. |
| PN=projectnumber | Project number associated with the user. projectnumber is a one- to 20-character string. Valid characters are A through Z, 0 through 9, and *. When you use the default CHARGE command (CHARGE,*), this value is used. If the user does not have CNRD privileges (not restricted to default charge number), this is the only charge number allowed. |
| PT=pt | Number of plot units a user is allowed. pt consists of two numeric characters followed by a radix. Blanks are suppressed. The maximum value is $77_8$, which specifies an unlimited number of plot units allowed. If you omit this parameter, the system supplies a value of 0. The system uses the formula<br><br>plot unit limit = (pt x $2000_8$) + KPTI<br><br>to calculate the limit of plot units a user may have. (Refer to NOS Version 2 Installation Handbook for a description of the COMSACC KPTI parameter.) |
| PW=password | A password (A through Z, 0 through 9) whose minimum length is set by the COMSACC installation parameter RPWL. Its maximum length is seven characters. The installation default for the RPWL parameter is four. Blanks are not significant. This parameter sets both the batch and interactive passwords. When you enter PW to change the passwords, the associated password expiration dates are advanced to the current date plus the number of days defined as the default password expiration term (COMSACC symbol). The user passwords are not displayed on the MODVAL K displays, since they are stored internally as encrypted values. The PW parameter is required when creating a user unless the RP parameter is specified on the MODVAL command or the minimum required password length is zero. If this parameter is not required and you omit it, the user must enter a null password at login. |

| Parameter | Description |
|---|---|
| PX=mode | Transmission mode for Remote Diagnostic Facility users. There should be only one entry per user name record. Since the terminal operates in full- or half-duplex mode, either of the following values is available for mode. By default, PX is set to half duplex. |

| mode | Description |
|---|---|
| FULL | System enters echoplex mode automatically. |
| HALF | System does not enter echoplex mode automatically. |

RL=ALL

Resource limits. This parameter sets all resource limits to unlimited values.

The user has unlimited use of the following resources:

| Identifier | Resource |
|---|---|
| CC | Batch commands |
| CM | Central memory field length |
| CP | Cards punched |
| CS | Cumulative indirect file size |
| DB | Deferred batch jobs |
| DF | Dayfile messages |
| DS | Direct access file size |
| DT | Detached jobs |
| EC | Extended memory field length |
| FC | Permanent file count |
| FS | Indirect access file size |
| LP | Lines printed |
| MS | Mass storage PRUs |
| MT | Magnetic tapes |
| PT | Units plotted |
| RP | Removable disk packs |
| SL | SRU limit |
| TL | CPU time limit |

| Parameter | Description |
|---|---|
| RP=rp | Number of removable disk packs allowed. rp $\leq$ 7. If rp=7, unlimited removable disk packs are allowed. If you omit this parameter, the system supplies a value of 0. |
| RO=ro | Rubout count for Remote Diagnostic Facility users. This is the character count delay associated with the user's terminal. ro consists of two numeric characters followed by a radix. Blanks are suppressed. One value from 0 to $37_8$ may be entered for each user name record. A value of $37_8$ denotes that the system will use the default number for the user's terminal type. By default, RO is set to $37_8$. |
| SAC=category | Security access categories. category is a one- to seven-character symbolic name that toggles a particular bit in the access category field (bits 31 through 0) of the security validation word. For each bit that is set, the corresponding access category is available to the user. Blanks are suppressed. These validations are checked only in a secured system. By default, no security access categories are selected. |

The following access category bits are defined in the security validation word. The site can redefine the names asociated with the access categories. The category listings given here are default values, which are defined in common deck COMSMLS.

| category | Bit | Description |
|---|---|---|
| CATnn | nn | User is validated for access category nn (00 $\leq$ nn $\leq$ 31). |

To set or clear all access category bits in the security validation word, specify the following for category.

ALL Sets all validation bits for the security access categories.

NUL Clears all validation bits for the security access categories.

SAL=level

Security access levels. level is a one- to seven-character symbolic name that toggles a particular bit in the access level field (bits 47 through 36) of the security validation word. For each bit that is set, the corresponding access level is available to the user. Blanks are suppressed.

In a secured system, a user must be valid for at least one access level to use the system. These validations are not checked in an unsecured system.

The following access level bits are defined in the security validation word. LVL7 is the highest security access level and LVL0 is the lowest. The site can redefine the names associated with the access levels. The level listings given here are default values, which are defined in common deck COMSMLS.

| Parameter | Description |
|---|---|

| level | Bit | Description |
|---|---|---|
| LVL7 | 43 | User is validated for access level 7. |
| LVL6 | 42 | User is validated for access level 6. |
| LVL5 | 41 | User is validated for access level 5. |
| LVL4 | 40 | User is validated for access level 4. |
| LVL3 | 39 | User is validated for access level 3. |
| LVL2 | 38 | User is validated for access level 2. |
| LVL1 | 37 | User is validated for access level 1. |
| LVL0 | 36 | User is validated for access level 0. |

By default, all new user names are created with LVL0 validation unless you enter a SAL parameter. In this case, the user is created with only those access levels specified.

To set or clear all access level bits in the security validation word, specify the following for level.

ALL Sets all validation bits for the security access categories.

NUL Clears all validation bits for the security access categories.

SAV=privilege

Security access validation. This parameter sets privileges that apply to both secured and unsecured systems. privilege is a four-character designation that toggles a particular bit in the privilege field (bits 59 through 48) of the security validation word. For each bit that is set, the corresponding special permission is allowed to that user. A bit is set when the parameter is first encountered and cleared if the parameter is used again. Blanks are suppressed. The following privilege bits are defined in the security validation word. By default, no security access validations are selected.

| privilege | Bit | Description |
|---|---|---|
| CSAP | 59 | User has security administrator privileges. This bit cannot be cleared by its owner. That is, the user executing MODVAL and clearing this permission bit must not be the user whose permission is being cleared. |
| COLD | 58 | User can execute online diagnostics. This bit applies to both secured and unsecured systems. |

| Parameter | Description |
|---|---|

| privilege | Bit | Description |
|---|---|---|
| CPWX | 57 | User can assign user password expiration date or term. This bit applies to both secured and unsecured systems. |
| CFPX | 56 | User can assign permanent file password and permit expiration date or term. This bit applies to both secured and unsecured systems. |
| CLJL | 55 | User can lower (downgrade) the access level of a job. This bit applies to secured systems only. |
| CLFL | 54 | User can lower (downgrade) the access level of local or permanent files. This bit applies to secured systems only. |
| CWLF | 53 | User can write to or extend files that are at a lower access level than the user's job (write-down privilege). This bit applies to secured systems only. |
| CULT | 52 | User can write to unlabeled magnetic tapes. This bit applies to both secured and unsecured systems. |

To set or clear all privilege bits in the security validation word, specify the following for privilege.

| privilege | Description |
|---|---|
| ALL | Sets all privilege validation bits. |
| NUL | Clears all privilege validation bits. |

SC=count

Security count. If the user name has security administrator privileges (CSAP security privilege), the expiration dates for both batch and interactive passwords are nonexpiring. The security count is unlimited. These values are set automatically and cannot be changed.

This parameter specifies the number of security conflicts allowed before the user is denied access to the system. The security count is decremented by the system when a security conflict occurs. The security count is not decremented for an unsuccessful attempt to log in. (For a description of security conflicts, refer to the NOS Version 2 Reference Set, Volume 3, chapter 3.) A value of $77_8$ indicates an unlimited security count. 0 means no access is allowed. If not specified, the default value is $SC=50_8$. The security count is not included as output from a LIMITS command.

SH=sh

Shell program name. sh is a one- to seven-character name of the shell program for screening user commands. For the Remote Diagnostic Facility, the system library program name is RMSHELL. The default is no SHELL program name.

| Parameter | Description |
|---|---|
| SL=sl | Maximum SRU accumulation for a user's job. sl consists of two numeric characters followed by a radix. All blanks are suppressed. The maximum value is $77_8$; values of $73_8$ or greater specify unlimited SRU accumulation. If you omit this parameter, the system will supply a value of 0. The system uses the formula<br><br>maximum SRU accumulation = $[(sl)2 \times 10_8 + KSLI] \times 10_8$<br><br>to calculate the maximum SRU accumulation that a user's job may have. (Refer to the NOS Version 2 Installation Handbook for a description of the COMSACC KSLI parameter. |
| SO=option | Shell control option. option is a four-character symbolic name that toggles a particular bit in the shell program control word (bits 0 through 6). Each bit that is set identifies a privilege allowed for a user. The bit is set when the parameter is first encountered and cleared if the parameter is used again. |

| option | Bit | Description |
|---|---|---|
| ABTM | 6 | Clears shell processing if screening program aborts. |
| LFID | 5 | Allows load of shell program from local file. |
| GLID | 4 | Allows load of shell program from global library. |
| SLID | 3 | Allows load of shell program from system library. |
| TCSM | 2 | System monitors commands directly from terminal input. |
| BCSM | 1 | System monitors commands outside procedures. |
| CCLM | 0 | System monitors commands inside procedures. |

By default, all new user names are created with shell options SLID and BCSM unless you enter an SO parameter. In this case, the user is created with only those options specified.

SP=sp

System prologue file index. sp is a one- or two-digit, octal, permanent file index that identifies the system prologue to execute. If specified, the prologue named PROCsp is executed as the first command of each job belonging to this user. The system prologue file PROCsp must be a permanent file under user name LIBRARY, permitted to use name SYSTEMX. It may be either a procedure or a binary file. By default, SP is set to zero, meaning no system prologue is required.

**NOTE**

If the value of SP is in the range of 1 to 7, the corresponding prologue name should be PROC1 to PROC7.

| Parameter | Description |
|---|---|

For SP, a value of $70_8$ or more indicates a security prolog. A security prologue can be used to lock a user into a specific application so that whenever a security prologue aborts, the user job automatically aborts or an interactive user is logged out.

TC=tc

Default character set to be used by the terminal. One of the following values is available for each user name. The default is NORMAL.

| tc | Description |
|---|---|
| NORMAL | ASCII graphic 63/64-character set. |
| ASCII | ASCII 128-character set. |

TL=tl

Determines the maximum CPU time that a user's job step may run. tl consists of two numeric characters followed by a radix. Blanks are suppressed. The maximum value is $77_8$, which specifies unlimited CPU time for each job step. If you omit this parameter, the system will supply a value of 0. The system uses the formula

CPU time limit = [(tl x $100_8$) + KTLI]

to calculate the maximum CPU time that a user's job step may run. (Refer to NOS Version 2 Installation Handbook for a description of this COMSACC KTLI parameter.)

Further, for interactive jobs the system establishes a lower bound for the CPU time limit. The lower bound is determined by selecting the larger value of the CPU time limit described above or the CPU time limit calculated by multiplying UTIS by 108. (Refer to NOS Version 2 Installation Handbook for a description of this COMSREM UTIS parameter.)

TT=tt

Terminal type for Remote Diagnostic Facility (RDF) users (except for Models 865 and 875.) You may specify one of the following values for each user name. The default is TTY.

| tt | Description |
|---|---|
| TTY | Teletype or other ASCII compatible terminal |
| BLKEDT | Block mode terminal |
| 713 | Control Data 713 display terminal |

UC=otsc

User default service class for each origin type. ot is a two-character mnemonic for origin type, and sc is a two-character mnemonic for the corresponding user default service class. Only one entry for each origin type is available for each user name.

You may specify the following origin types:

| ot | Description |
|---|---|
| BC | Batch origin type |
| RB | Remote batch origin type |
| IA | Interactive origin type |

| Parameter | Description |
|---|---|

You may specify the following service classes:

| sc | Description |
|---|---|
| SY | System service class |
| BC | Batch service class |
| RB | Remote batch service class |
| TS | Interactive service class |
| DI | Detached interactive service class |
| NS | Network supervisor service class |
| MA | Maintenance service class |
| CT | Communication task service class |
| In | Installation-defined service class n ($0 \leq n \leq 3$) |

The default service class for each origin type follows.

| ot | sc | Description |
|---|---|---|
| BC | BC | Batch |
| RB | RB | Remote batch |
| IA | TS | Interactive |

The origin type is always required. If you also specify a service class, it is assigned as the user default service class for the selected origin type. If you do not specify a service class, the default service class for the selected origin type is assigned as the user default.

UI=userindex

User index assigned to this user. If you do not supply this entry, the system assigns the next available user index. userindex consists of six numeric characters followed by a radix. Blanks are suppressed. The maximum value is $377777_8$. You cannot use this parameter with the K display or update option. You must use the FUI parameter instead.

Since user indexes are usually thought of as octal values, be sure to add the radix B to indicate an octal value.

UP=up

User prologue name. up is a one- to seven-character permanent file name that identifies the user prologue to execute. If specified, the user prologue is executed (following the system and project prologues, if any) as the first commands of each job belonging to the user.

| Parameter | Description |
|---|---|
| VM=sc | Service classes a user is allowed to select. sc is a two-character service class symbol that toggles a particular bit in the validation mask. For each bit that is set, the user is allowed the corresponding service class. A bit is set when the parameter is first encountered. It is cleared if the parameter is used again.<br><br>After the VM parameter is processed, the bits corresponding to the service classes specified by the UC parameter (or the defaults) are set. Therefore, all users are validated to use the user default service classes specified by the UC parameter, regardless of what is specified by the VM parameter (including NUL). |

**NOTE**

To use a service class that differs from the default service class set for an origin type, the service class must be validated by the IPRDECK or DSD class command. For more information, refer to the NOS Version 2 Analysis Handbook.

You may specify the following service classes:

| sc | Bit | Description |
|---|---|---|
| -- | 0 | Unused |
| SY | 1 | System service class |
| BC | 2 | Batch service class |
| RB | 3 | Remote batch service class |
| TS | 4 | Interactive service class |
| DI | 5 | Detached interactive service class |
| NS | 6 | Network supervisor service class |
| | 7 | Reserved |
| MA | 8 | Maintenance service class |
| CT | 9 | Communication task service class |
| IO | 10 | Installation-defined service class 0 |

| Parameter | Description |
|---|---|

| sc | Bit | Description |
|---|---|---|
| I1 | 11 | Installation-defined service class 1 |
| I2 | 12 | Installation-defined service class 2 |
| I3 | 13 | Installation-defined service class 3 |

To set or clear all service class bits in the validation mask, specify the following for sc.

| sc | Description |
|---|---|
| ALL | Sets all service class validation mask bits. |
| NUL | Clears all service class validation mask bits. |

XB=yymmdd†

Batch expiration date. This parameter is the same as the XD parameter except that it sets only the batch password expiration date.

XD=yymmdd†

Expiration date. This parameter sets the password expiration date for the batch and interactive passwords to yymmdd, and it sets the default date.

XI=yymmdd†

Interactive expiration date. This parameter is the same as the XD parameter except that it sets only the interactive password expiration date. This is determined from the site-defined default expiration term.

XT=term†

Password expiration date by term. This parameter adds a 1- to 4-digit expiration term value to the current date to calculate a new batch and interactive password expiration date. The term value can be from 0 to 4095 ($7777_8$). Decimal is assumed unless the post radix B is specified. The default term value is site-defined. It is used to calculate the expiration date if neither XD nor XT is specified when you create a new user name or change the user password(s).

XT=0 sets the password to expire immediately. This temporarily disables a password without deleting it from the validation file.

You can set the password to nonexpiring by entering XT=4095 or XT=7777B or XT=*.

XTB=term†

Batch password expiration date by term. This parameter is the same as the XT parameter except that only the batch password expiration date changes.

XTI=term†

Interactive password expiration date by term. This parameter is the same as the XT parameter except that only the interactive password expiration date changes.

†If the user name has security administrator privileges (CSAP security privilege), the expiration dates for both batch and interactive passwords are nonexpiring. The security count is unlimited. These values are set automatically and cannot be changed.

## EXAMPLES OF MODVAL USE

The examples in this section give representative commands for exercising the MODVAL options both at the console and by batch input. System files are in user index $377777_8$. The system accepts the ISF command only in the idlefamily situation; therefore, before ISF,R=VALIDUs can be entered, the system must be emptied of all executing jobs. This may be a time-consuming task. Refer to NOS 2 Analysis Handbook for more information about the IDLEFAMILY and ISF commands.

**NOTE**

These examples apply only to an unsecured system. In a secured system, the SUI command is not valid, so you must use a USER,SYSTEMX,password command instead. In examples in which you use the SUI command before a validation file exists, you must use a GENVAL command to create a validation file before the USER,SYSTEMX,password command is executed.

Example 1:

Example 1 creates a user name at the console by using the C,username format. MODVAL is called, and the B,O display indicates the job sequence name for the job (jsn). The K display for the job is initiated. Following this is an entry of three user names with a password parameter for each.

```
X.MODVAL.

K,jsn.

K.C,USER201

K.PW=ADMIT1

K.END

K.C,USER202

K.PW=ADMIT2

K.END

K.C,USER203

K.PW=ADMIT3

K.END

K.END
```

Example 2:

This example uses the / format at the console to create the same users as does example 1.

```
X.MODVAL.

K,jsn.

K./USER201,PW=ADMIT1

K./USER202,PW=ADMIT2

K./USER203,PW=ADMIT3

K.END

K.END
```

Example 3:

The procedure in this example creates the same users as do examples 1 and 2, but this is a batch job with default values used for the file names. The following is the command input.

```
ujn.

USER,username,password,familyname.

MODVAL,OP=C.

SAVE,NEWVAL.

SAVE,VALINDs=VAL.

end-of-record

/USER201,PW=ADMIT1

/USER202,PW=ADMIT2

/USER203,PW=ADMIT3

end-of-information
```

This job produces indirect access permanent files. You must convert these files to direct access files. The following input at the console shows you how to do this.

```
X.DIS.

USER,username,password,familyname.

GET,NEWVAL.

GET,VAL.

SUI,377777.
```

Under DSD (toggle with *):

| | |
|---|---|
| IDLEFAMILY,est. | est is the EST ordinal of the device to be idled. This is the device (the master device for user index $377777_8$) in which the validation file for the family resides. |

Under DIS (toggle with *):

```
ISF,R=VALIDUs,FM=familyname.

PURGE,VALIDUs,VALINDs.

DEFINE,VALIDUs,VALINDs.

COPY,NEWVAL,VALIDUs,V.

COPY,VAL,VALINDs,V.

RETURN,VALIDUs,VALINDs.

ISF,E=VALIDUs,FM=familyname.
```

Example 4:

In this example, the same users (refer to previous examples) are created, but you put the directives in a separate file called PUTIN. The following indirect access file must be on mass storage before you submit the batch input.

File PUTIN:

```
/USER201,PW=ADMIT1

/USER202,PW=ADMIT2

/USER203,PW=ADMIT3
```

The batch input is:

```
ujn.

USER,username,password,familyname.

GET,PUTIN.

MODVAL,OP=C,I=PUTIN,N=VALNEW.

SAVE,VALNEW.

SAVE,VALINDs=VALX.

end-of-information
```

After this job has executed, make the same entries at the console as shown in example 3 to change these files to direct access files.

Example 5:

This example shows how to update the user information at the console by using the U,username format. The first two user names created in the earlier examples have different passwords.

```
X.MODVAL.

K,jsn.

K.U,USER201

K.PW=ENTER1

K.END

K.U,USER202

K.PW=ENTER2

K.END

K.END
```

Example 6:

In this example, you enter the previous parameters (refer to example 5) at the console with the / format.

```
X.MODVAL.

K,jsn.

K./USER201,PW=ENTER1

K./USER202,PW=ENTER2

K.END

K.END
```

Example 7:

This example shows how you can update the same information as in examples 5 and 6 by means of batch input. First, copy the direct access permanent files VALIDUs and VALINDs to permanent files (direct or indirect) that can be accessed by the batch input and used in the MODVAL command. Before you do this at the console, you must create an idlefamily situation and enter the ISF,R=VALIDUs command.

```
X.DIS.

SUI,377777.

ATTACH,VALIDUs,VALINDs.

COPY,VALIDUs,VAL.

COPY,VALINDs,VALX.

RETURN,VALIDUs,VALINDs.

ISF,E=VALIDUs.

USER,username,password,familyname.

SAVE,VAL,VALX.
```

The batch input is:

```
ujn.

USER,username,password,familyname.

GET,VAL,VALX.

MODVAL,OP=U,P=VAL,U=VALX.

REPLACE,VAL,VALX.

end-of-record

/USER201,PW=ENTER1

/USER202,PW=ENTER2

end-of-information
```

The following console input shows how to transfer the modification made in example 7 back to the system validation files VALIDUs and VALINDs. You must use the M=W in the ATTACH to establish write permission relative to the direct access files. However, before you do this, you must create an idlefamily situation and enter an ISF,R=VALIDUs command.

```
X.DIS.

SUI,userindex.

FAMILY,familyname.

GET,VAL,VALX.

SUI,377777.

ATTACH,VALIDUs,VALINDs/M=W.

COPY,VAL,VALIDUs.

COPY,VALX,VALINDs.

RETURN,VALIDUs,VALINDs.

ISF,E=VALIDUs,FM=familyname.
```

If you use the OP=Z option, it is not necessary to provide an input file and save it under $377777_8$. The Z option makes the changes directly as follows:

```
X.DIS.

MODVAL,OP=Z./USER201,PW=ENTER1

   (one user at a time)
```

Example 8:

The following is an example of the way you can delete a user from the console only.

```
X.MODVAL.

K.jsn.

K.DEL,USER203

K.END
```

Example 9:

In this example, you initiate the reformatting of the validation file from the console. Before you use DIS and type in commands (no K display), you must create an idlefamily situation and enter the ISF,R=VALIDUs command. The OUTPUT file will have a listing of the purged indexes.

```
X.DIS.

SUI,377777.

ATTACH,VALIDUs,VALINDs/M=W.

MODVAL,OP=R.

REWIND,VALIDUs,NEWVAL.

COPY,NEWVAL,VALIDUs.

OUT.

RETURN,VALIDUs,VALINDs.

ISF,E=VALIDUs.
```

Example 10:

The procedure in the following example reformats the validation file with batch input, using indirect access copies made at the console of the direct access files. Before you do this, you must create an idlefamily situation and enter the ISF,R=VALIDUs command.

```
X.DIS.

SUI,377777.

ATTACH,VALIDUs,VALINDs.

COPY,VALIDUs,VAL.

COPY,VALINDs,VALX.

RETURN,VALIDUs,VALINDs.

ISF,E=VALIDUs.

USER,username,password,familyname.

SAVE,VAL,VALX.
```

The batch input is:

```
ujn.

USER,username,password,familyname.

GET,VAL,VALX.

MODVAL,OP=R,P=VAL,U=VALX.

SAVE,NEWVAL.

REPLACE,VALX.

end-of-information
```

Then enter the following from the console, after you have created an idlefamily situation and entered the ISF,R=VALIDUs command.

```
X.DIS.

SUI,userindex.          (The userindex and familyname must correspond to the USER
                        command in the batch job.)

FAMILY,familyname.

GET,NEWVAL,VALX.

SUI,377777.

ATTACH,VALIDUs,VALINDs/M=W.

COPY,NEWVAL,VALIDUs,V.

COPY,VALX,VALINDs,V.

RETURN,VALIDUs,VALINDs.

ISF,E=VALIDUs,FM=familyname.
```

Instead of the ATTACH, in which each COPY writes over an old file, you may use

```
PURGE,VALIDUs,VALINDs.

DEFINE,VALIDUs,VALINDs.
```

and then copy to the empty files.

Example 11:

The following example shows how to return the validation file to source code at the console.

```
X.DIS.

SUI,377777.

MODVAL,OP=S,FA.

SAVE,SOURCE.
```

Later, you could use this source code file to create a new VALIDUs file with:

```
GET,SOURCE.

MODVAL,OP=C,I=SOURCE,SI.
```

The SI parameter suppresses the automatic creation of the special user names.

Example 12:

The following example shows how to return the validation file to source code, using batch input. First you must create an idlefamily situation and enter the ISF,R=VALIDUs command.

```
X.DIS.

SUI,377777.

FAMILY,familyname.

ATTACH,VALIDUs,VALINDs.

COPY,VALIDUs,VAL.

COPY,VALINDs,VALX.

RETURN,VALIDUs,VALINDs.

ISF,E=VALIDUs,FM=familyname.

USER,username,password,familyname.

SAVE,VAL,VALX.
```

The batch input is:

```
ujn.
USER,username,password,familyname.
GET,VAL,VALX.
MODVAL,OP=S,P=VAL,U=VALX.
SAVE,SOURCE.
```

From the console, enter:

```
X.DIS
USER,username,password,familyname.
GET,SOURCE.
SUI,377777.
SAVE,SOURCE.
```

Example 13:

The following example shows how to convert a validation file from an existing system (pre-NOS 2.7.3 level 780) to use on a NOS 2.7.3 level 780 or later system. First deadstart the existing system, and then enter the following sequence of commands at the console.

```
X.DIS.

SUI,377777.

DEFINE,SOURCE.

MODVAL,OP=S,FA.

DROP.
```

When you have successfully converted the validation file to source, you must edit any validations that were unavailable in the existing system into the newly created source file by supplying appropriate directives. Deadstart a NOS 2.7.3 level 780 or later system and enter the following sequence of commands at the console. You must create an idlefamily situation by entering the IDLEFAMILY command followed by the ISF,R=VALIDUs command.

```
X,DIS.

SUI,377777.

PURGE,OLDVAL,OLDVALI,NEWVAL,NEWVALI/NA.

DEFINE,NEWVAL,VALINDs=NEWVALI.

ATTACH,SOURCE.

MODVAL,OP=C,I=SOURCE,SI,CV=K.

RETURN,NEWVAL,VALINDs.

CHANGE,OLDVAL=VALIDUs,OLDVALI=VALINDs.

CHANGE,VALIDUs=NEWVAL,VALINDs=NEWVALI.

ISF,E=VALIDUs.

DROP.
```

In case you should encounter a problem with the conversion, the files OLDVAL and OLDVALI are still available. Once you verify that the files were converted successfully, you may purge these files.

The batch input is:

```
ujn.
USER,username,password,familyname.
GET,VAL,VALX.
MODVAL,OP=S,P=VAL,U=VALX.
SAVE,SOURCE.
```

From the console, enter:

```
X.DIS.
USER,username,password,familyname.
GET,SOURCE.
SUI,377777.
SAVE,SOURCE.
```

Example 13:

The following example shows how to convert a validation file from an existing system (pre-NOS 2.4.2) to NOS 2.4.2 format. First deadstart the existing system, and then enter the following sequence of commands at the console.

```
X.DIS.

SUI,377777.

DEFINE,SOURCE.

MODVAL,OP=S,FA.

DROP.
```

When you have successfully converted the validation file to source, you must edit any validations that were unavailable in the existing system into the newly created source file by supplying appropriate directives. Deadstart a NOS 2.4.2 system and enter the following sequence of commands at the console. You must create an idlefamily situation by entering the IDLEFAMILY command followed by the ISF,R=VALIDUs command.

```
X.DIS.

SUI,377777.

PURGE,VALIDUs,VALINDs.

DEFINE,VALIDUs,VALINDs.

ATTACH,SOURCE.

MODVAL,OP=C,I=SOURCE,N=VALIDUs,CV=CDF.

RETURN,VALIDUs,VALINDs.

ISF,E=VALIDUs.

DROP.
```

Note that you should not use the SI parameter of MODVAL when initially creating a NOS 2.4.2 validation file from a pre-NOS 2.2 validation file. You must recreate special user names such as SYSTEMX with new parameter values. Expect directive errors when doing this; they occur due to duplicate definitions of the special user names and should be ignored.

**NOTE**

It is not possible to use the source file from a NOS 2.4.2 validation file to create a validation file for a pre-NOS 2.2 system. Since the passwords are kept in encrypted form, you cannot use them to generate the necessary PW=password directives.

Example 14:

The procedure in the following example creates a VALIDUs file and a VALINDs file when there are no VALIDUs and VALINDs files already present; that is, it creates an initial VALIDUs file and an initial VALINDs file.

The local file PUTIN contains input directives for three user names.

```
/USER201,PW=ADMIT1

/USER202,PW=ADMIT2

/USER203,PW=ADMIT3
```

Enter the following at the console.

```
X.DIS.

SUI,377777.

DEFINE,VALIDUs,VALINDs.

MODVAL,I=PUTIN,N=VALIDUs,OP=C.

RETURN,VALIDUs,VALINDs.

ISF,E=VALIDUs.
```

Example 15:

The following example shows how to update the validation file by means of a system origin job using a directive file created by a batch or interactive job.

The job does the following:

1. Creates a directive file with the desired changes.

2. Uses local copies of the current VALIDUs and VALINDs files to verify that the input directives are correct. The local copies of the validation files must have been previously created by a system origin job and saved for future use. Note that you can change the current running validation file by using the PASSWOR, CHVAL or UPROC commands (refer to NOS 2 Reference Set, Volume 3).

3. Saves the directive file as a permanent file whose existence indicates that a MODVAL update should be performed. The directive file should be permitted to user name SYSTEMX with WRITE permission.

You then initiate a system origin job from the system console to periodically check for the existence of the directive file. Do this by using the procedure defined in file PROCFIL under user name SYSTEMX. Initiate the procedure by using the following command:

```
X.BEGIN (procedure)
```

The procedure for this example is:

```
.PROC,procedure.
WHILE,TRUE,LOOP.
GET,file/UN=user,NA.          (Parameter file is the name of the directive file saved
                               under user name user.)
IF,FILE(file,AS),UPMOD.
MODVAL,OP=U,FA,I=file.
PURGE,file/UN=user.           (Must have WRITE access.)
ENDIF,UPMOD.
ROLLOUT,1200.                 (Check again in 20 minutes.)
ENDW,LOOP.
```

## SPECIAL USER NAMES

User names whose user indexes are greater than AUIMX (which is defined as $377700_8$ in common deck COMSACC) are considered special user names. To protect special user names from unauthorized access and to prohibit the use of special user names to access the system, all special user names are invalid during login or on USER commands (except from system origin jobs). You may create permanent files under the special user names by means of special system jobs or system origin jobs.

During a MODVAL creation run, if you do not specify the SI parameter on the MODVAL command, 14 special user names will be created. These include eight special user names that are used in an MSE or MSS environment (SUBFAMi,i=0,1,...,7), the Printer Support Utility (PSU) user names, the network operations user name (NETOPS), the PLATO user name (PLATOMF), the application library user name (APPLLIB), the flawed files user name (FLAWPF), the library user name (LIBRARY), and the system user name (SYSTEMX). These user names are automatically created and require no action. The following directives create these special user names.

```
/SUBFAM0,UI=377760B,AW=ALL,PW=SUBFAM0,XT=0.
/SUBFAM1,UI=377761B,AW=ALL,PW=SUBFAM1,XT=0.
                  .
                  .
                  .
/SUBFAM7,UI=377767B,AW=ALL,PW=SUBFAM7,XT=0.
/NETOPS,UI=377772B,AW=ALL,PW=NETOPSX,AP=ALL,RL=ALL,XT=0.
/PLATOMF,UI=377773B,AW=ALL,PW=PLATOMF,XT=0.
/APPLLIB,UI=377774B,AW=ALL,PW=APPLLIB,XT=0.
/FLAWPF,UI=377775B,AW=ALL,PW=FLAWPFX,XT=0.
/LIBRARY,UI=377776B,AW=ALL,PW=LIBRARY,XT=0.
/SYSTEMX,UI=377777B,AW=ALL,PW=SYSTEMX,SAL=ALL,SAV=ALL,RL=ALL.
```

User names in permanent files cataloged under the SUBFAMi,i=0,1,...7, are used during MSE or MSS processing (refer to NOS 2 Analysis Handbook for more information). If you do not redo a MODVAL creation run, you must add these user names manually.

**NOTE**

User indexes $377775_8$ and $377760_8$ through $377767_8$ are used for special purposes in the permanent file system. Because of this, PFDUMP will dump only certain files on these user indexes. Therefore, do not attempt to save files on these user indexes.

Permanent files cataloged under the NETOPS user name include the NAMSTRT file, which defines how NAM and its applications are initiated; the CDCNET network directory (NETDIR) which maps NOS permanent file names into CDCNET network file names; as well as all network dump and trace files created by the network as it is running.

The PLATO application defines and uses permanent files cataloged under the PLATOMF user name.

Permanent files cataloged under the APPLLIB user name are application programs for which the accounting is based on usage. Many users access these programs, and they are charged accordingly. All such programs must be of the direct-access type and have execute-only mode. Files cataloged under the APPLLIB user name should be cataloged with the appropriate permanent file category, passwords, and permit information, to allow the desired alternate users access to the files.

PFLOAD uses the FLAWPF user name to designate sectors in the indirect access file chain that have flaws (sectors that produce disk errors when accessed). No permanent files can be cataloged under this user index.

Many users access permanent files cataloged under the LIBRARY user name. Typically, the information saved under user name LIBRARY consists of indirect access permanent files containing programs or text of general interest, such as application programs. You can access these indirect access files with the interactive LIB command (refer to NOS 2 Reference Set, Volume 3 for further information). Catalog the files under the LIBRARY user name with the appropriate permanent file category, passwords, and permit information to allow the desired alternate users access to the files.

Permanent files cataloged under the SYSTEMX user name are validation, project profile, resource, terminated dayfiles, and maintenance and job initiation procedures. Ordinary users should not be able to access this information.

When MODVAL creates the default special user names SUBFAM0 through SUBFAM7, NETOPS, PLATOMF, APPLLIB, FLAWPF, and LIBRARY, it sets the associated passwords as immediately expiring. These passwords are public knowledge since they appear in the source to MODVAL; setting them as immediately expiring forces the security administrator to change them and reset the expiration dates before the special user names can be used. Change the passwords of the special user names from a job under the user name SYSTEMX, which has a nonexpiring password. The security administrator should also change the password for user name SYSTEMX since it also appears in MODVAL.

# USER ACCOUNTING 3

The special system file PROFILa contains the information required to control a user's accounting and access to the system. This access is controlled not only by charge numbers and project numbers but also by time in, time out, expiration for charge and project numbers, accumulated SRUs, and the use of up to eight resources defined by the installation. In addition, the system writes all exercise of this access by individual users to the accounting dayfile, thereby affording the customer a time log as a basis for account billing. The system updates the accumulated SRUs when a user's job terminates or when another CHARGE command is executed.

You can use the system file PROFILa from the console and, if you are validated to be a master user, from a batch or interactive job.

PROFILa affords three levels of job accounting.

| Level of Accounting | Description |
|---|---|
| Charge Number | This is the primary division of the customer's job accounting structure. It is a 1- to 10-character billing identifier. |
| Project Number | This is a second-level division of the charge number. It is a 1- to 20-character identifier of a particular project. You can also specify for a given project number the access time, resource limits, project prologue, and project epilogue parameters for this project.<br><br>Users who have been declared master users can enter and change project numbers and their associated parameters. |
| User Name | The third level is a 1- to 7-character identifier of the individual user who is allowed access to a designated project. This is the same user name that VALIDUs furnishes to verify system access (refer to the User Validation section of this manual).<br><br>The master user enters and deletes user names. A user can be validated for any number of projects under the same charge number or under different charge numbers. |

†In this manual, the user accounting file is referred to as PROFILa. Refer to table 1-1 for a list of file names that correspond to the appropriate operating system levels.

††Limit and accumulation fields for these eight installation-defined resources have been reserved in PROFILa and are checked for exhaustion of the corresponding resource by routine CHARGE. However, the system provides no facility for the dynamic update of the accumulation fields as these resources are being used.

Although you can enter charge numbers, project numbers, and user names at the console, practical dictates of your site might require that you create only a shell of the PROFILa file; that is, that you enter just the charge numbers and the associated master users. This relatively constant information is furnished by the site personnel. Following this, the master users update the PROFILa file with the projects and users under their direct control. Figure 3-1 illustrates this two-stage structuring of a PROFILa file.

There are three classifications of access and modification to PROFILa:

- System origin jobs
- Special accounting users (CSAP set in the user access validation word)
- Master users

These classes appear in the order of the capability they provide. System origin jobs have complete access to PROFILa, with no restrictions regarding PROFILE options and directives. Special accounting users from nonsystem origin jobs have full capabilities on update, list, and inquire runs but may not perform create, source, or reformat runs. Master users from nonsystem origin jobs may not change any charge number parameters (such as SRU multiplier indexes) or installation-related parameters (such as installation accumulators or project expiration date) for a project number. A master user may alter values pertaining only to charge numbers for which that user is the defined master user.

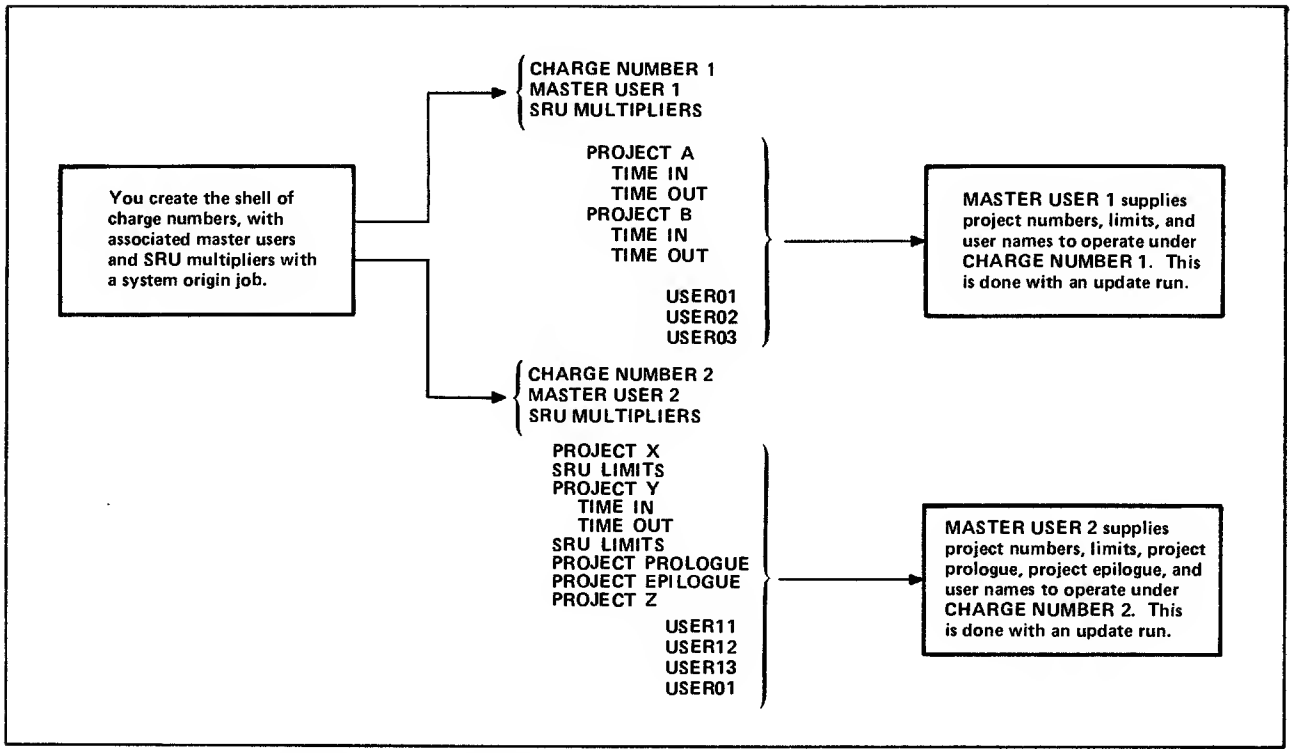


Figure 3-1. Representative Structure of a PROFILa File

## PROFILa PROJECT PROFILE MANAGER

You can create PROFILa, the project profile file, only from the console by means of a system origin job (refer to PROFILE Console Input). Access and modification of an existing PROFILa file can be done from the console, a card reader (refer to PROFILE Batch Input), or an interactive terminal (refer to PROFILE Execution from a Terminal), depending on the option. In all cases, the PROFILE command calls options into execution. The format of the command is

PROFILE,$p_1$,$p_2$,...,$p_n$.

where $p_i$ is a parameter used in defining project profile operations and files.

### ANALYST (SYSTEM ORIGIN JOB) PARAMETERS

| $P_i$ | Description |
|---|---|
| OP=C | Create option. Input directives are processed so as to create a new PROFILa file. Enter directives through the input file. Because this option defines a new project file, it must be previously undefined. This is the only option that does not require an existing project file containing at least one charge number. |
| OP=K | K display option. All other options (multiple OP specifications) are cleared, and you must enter instructions by the K display.<br><br>For a system origin job, if no parameters are specified and the command is<br><br>PROFILE.<br><br>the K display option will be automatically selected. In all other cases, OP=U is the default. |
| OP=R | R indicates a restructuring that rebuilds a copy of the current PROFILa file, discarding any deleted entries and reconstructing the directory to reduce file access. This restructured file replaces the existing PROFILa file. Do not specify OP=R if the PROFILa file is attached to any job or has a fast-attach status. Refer to System File Initialization in NOS 2 Analysis Handbook for more information on fast-attach files. |

| $P_i$ | Description |
|---|---|
| OP=S | Returns the PROFILa file to source format (directive images) and places this source code on the source file (either S=source or SOURCE). This source file is used as the input for a later create or update. |
| FM=familyname | Name of the family the user wishes PROFILE to access. You can specify this option only from a system origin job. |
| S=filename | File that receives PROFILa source data for the option OP=S. Default is SOURCE. |
| OP=L,LO=F | Produces a full listing of the PROFILa file; figure 3-2 is an example. |
| OP=L,LO=C | Produces a listing of charge numbers only for the PROFILa file; figure 3-3 is an example. |
| OP=L,LO=P | Produces a complete charge number and project number listing for the PROFILa file; figure 3-4 is an example. |

```
PROFILC FULL FILE LIST      OF FULL FILE.                PAGE     1
        CHARGE NUMBER                                yy/mm/dd.   hh/mm/ss.

     1. 0552
        CONTROLS FOR CHARGE NUMBER 0552

         CREATION DATE    yy/mm/dd.    EXPIRATION DATE  UNDEFINED
         ENTRY *ACTIVE*                PROJECT COUNT = 5
         MU  = GSY2447                 PCL = (NO LIMIT)
         ISL = 77B        (NO LIMIT)   IR1 = 77B        (NO LIMIT)
         IR2 = 77B        (NO LIMIT)   IR3 = 77B        (NO LIMIT)
         IR4 = 77B        (NO LIMIT)   IR5 = 77B        (NO LIMIT)
         IR6 = 77B        (NO LIMIT)   IR7 = 77B        (NO LIMIT)
         IR8 = 77B        (NO LIMIT)
         M1  = 77B        (   1.000)   M2  = 74B        (   0.143)
         M3  = 6B         (   0.006)   M4  = 77B        (   0.003)
         AD  = 77B        (   0.000)
```

Figure 3-2. Full File List (OP=L,LO=F) (sheet 1 of 2)

```
  CONTROLS FOR PROJECT NUMBER 0E00356

    CREATION DATE    yy/mm/dd.    LAST CHANGE DATE yy/mm/dd.
    LAST UPDATE DATE UNDEFINED    LAST UPDATE TIME UNDEFINED
    ENTRY *ACTIVE*                EXPIRATION DATE  UNDEFINED
    TI  = 0000                    TO  = 0000
    PFN = PPROLOG                 EFN = PEPILOG
    PUN = USERNAM                 EUN = USERNAM
    PPW = *******†                EPW = *******†
    PCR = A                       ISV = 77B       (NO LIMIT)
    SML = (NO LIMIT)              SMA = 45707
    SIL = (NO LIMIT)              SIA = 45707
    LR1 = (NO LIMIT)              AR1 = 0
    LR2 = (NO LIMIT)              AR2 = 0
    LR3 = (NO LIMIT)              AR3 = 0
    LR4 = (NO LIMIT)              AR4 = 0
    LR5 = (NO LIMIT)              AR5 = 0
    LR6 = (NO LIMIT)              AR6 = 0
    LR7 = (NO LIMIT)              AR7 = 0
    LR8 = (NO LIMIT)              AR8 = 0

    USER NUMBERS VALID TO USE 0E00356
DRK2642   JRL2422   KPH2421   MJP2423   REN2424
SDL2622

  CONTROLS FOR PROJECT NUMBER 0E00361

    CREATION DATE    yy/mm/dd.    LAST CHANGE DATE yy/mm/dd.
    LAST UPDATE DATE UNDEFINED    LAST UPDATE TIME UNDEFINED
    ENTRY *ACTIVE*                EXPIRATION DATE  UNDEFINED
    TI  = 0000                    TO  = 0000
    PFN = PPROLOG                 EFN = PEPILOG
    PUN = USERNAM                 EUN = USERNAM
    PPW = *******†                EPW = *******†
    PCR = A                       ISV = 77B       (NO LIMIT)
    SML = (NO LIMIT)              SMA = 43777
    SIL = (NO LIMIT)              SIA = 43777
    LR1 = (NO LIMIT)              AR1 = 0
    LR2 = (NO LIMIT)              AR2 = 0
    LR3 = (NO LIMIT)              AR3 = 0
    LR4 = (NO LIMIT)              AR4 = 0
    LR5 = (NO LIMIT)              AR5 = 0
    LR6 = (NO LIMIT)              AR6 = 0
    LR7 = (NO LIMIT)              AR7 = 0
    LR8 = (NO LIMIT)              AR8 = 0

    USER NUMBERS VALID TO USE 0E00361
JJC2426   JMC2171   JXC2566   RLM2155   SDL2622
```

†If a password is defined for the project prologue or project epilogue, the password field appears as a string of asterisks. If no password is defined, the field is blank.

Figure 3-2. Full File List (OP=L,LO=F) (sheet 2 of 2)

```
PROFILC CHARGE NUMBER LIST  OF FULL FILE.                PAGE     1
        CHARGE NUMBER       MASTER USER          yy/mm/dd. hh.mm.ss.

     1. ABCD12              PLL2361
     2. BOSTON
     3. TSTCHRG
     4. 0411                PLL2361
     5. 0520                PLL2361
     6. 0522                PLL2361
     7. 0523                PLL2361
     8. 0552                PLL2361
     9. 0560                PLL2361
    10. 0561                PLL2361
    11. 0580                PLL2361
    12. 0593                PLL2361
    13. 0594                PLL2361
    14. 0595                PLL2361
    15. 0912                PLL2361
    16. 0922                PLL2361
    17. 1097                PLL2361
    18. 1205                PLL2361
    19. 1212                PLL2361
    20. 1215                PLL2361
    21. 1218                PLL2361
    22. 1219                PLL2361
    23. 1220                PLL2361
    24. 1221                PLL2361
    25. 1226                PLL2361
    26. 1228                PLL2361
    27. 1229                PLL2361
    28. 1240                PLL2361
    29. 1242                PLL2361
    30. 1247                PLL2361
    31. 1250                PLL2361
    32. 1257                PLL2361
    33. 1258                PLL2361
    34. 1280
    35. 1292                PLL2361
    36. 1492                PLL2361
    37. 1493                PLL2361
    38. 1732                PLL2361
    39. 2908                PLL2361
    40. 3053                PLL2361
    41. 3054                PLL2361
    42. 3056                PLL2361
    43. 3572                PLL2361
    44. 3576                PLL2361
    45. 3585                PLL2361
    46. 3674                PLL2361
    47. 3910                PLL2361
    48. 3914                PLL2361
    49. 3917                PLL2361
    50. 4302
```

Figure 3-3. Full File Charge Number List (OP=L,LO=C)

```
PROFILC PROJECT NUMBER LIST OF FULL FILE.                PAGE     1
        CHARGE NUMBER       MASTER USER          yy/mm/dd.  hh.mm.ss.

      1. 0523               PLL2361
             VALIDATED PROJECT NUMBERS ARE -
         5053P01

      2. 0552               PLL2361
             VALIDATED PROJECT NUMBERS ARE -
         0E00356                        0E00361
         0E00377                        05527520
         5076M52

      3. 0560               PLL2361
             VALIDATED PROJECT NUMBERS ARE -
         05607520

      4. 0561               PLL2361
             VALIDATED PROJECT NUMBERS ARE -
         0140107

      5. 0580               PLL2361
             VALIDATED PROJECT NUMBERS ARE -
         0107403                        0110107
         0110117

      6. 0593               PLL2361
             VALIDATED PROJECT NUMBERS ARE -
         0B25550                        0B25850
         0110103X

      7. 0594               PLL2361
             VALIDATED PROJECT NUMBERS ARE -
         C10508                         C10558
         C20108                         0A301E5
         0C10108                        330103
```

Figure 3-4. Full File Project Number List (OP=L,LO=P)

## ANALYST AND MASTER USER PARAMETERS

| Parameters | Description |
|---|---|
| CV | Builds a source file from NOS 2.4.2 PROFILC. Suppresses project prologue and epilogue directives. This parameter is meaningful only with OP=S. |
| I=infile | File that contains input data for a create (OP=C) and an update (OP=U); default is INPUT. |
| L=outfile | File that receives output listings; default is OUTPUT. |
| P=profile | Project profile file; default is PROFILa. If specified, profile must not be a fast-attach file. |
| OP=U | Updates the project profile file with directives supplied by the input file. U is the default option for a nonsystem origin job or a system origin job for which at least one parameter is specified on the PROFILE command. |
| OP=T | Interactive update. Processing is the same as OP=U, but preliminary instructions are suppressed at the terminal. |
| OP=I,CN=chargenumber. | Charge number inquiry. All project numbers valid for charge number CN are written to the output file; figure 3-5 is an example. |
| OP=I,CN=chargenumber, PN=projectnumber. | Project number inquiry. The control values and all valid user names for project number projectnumber are written to the output file; figure 3-6 is an example. |
| OP=L,LO=FM | Full list of everything accessible on the PROFILa file by the master user; figure 3-7 shows a sample listing. |
| OP=L,LO=CM | Charge number list of all charge numbers accessible on the PROFILa file by the master user; figure 3-8 shows a sample listing. |
| OP=L,LO=PM | Project number list of all project numbers accessible on the PROFILa file by the master user; figure 3-9 shows a sample listing. |
| OP=L | Default is LO=F when the list option is called from a system origin job. The default is LO=FM if the job is not of system origin. |

```
PROFILE,OP=I,CN=0552.                                    yy/mm/dd. hh.mm.ss.

   CONTROLS FOR CHARGE NUMBER 0552

    CREATION DATE    yy/mm/dd.     EXPIRATION DATE  UNDEFINED
    ENTRY *ACTIVE*                 PROJECT COUNT = 5
    MU  = PLL2361                  PCL = (NO LIMIT)
    ISL = 77B        (NO LIMIT)    IR1 = 77B        (NO LIMIT)
    IR2 = 77B        (NO LIMIT)    IR3 = 77B        (NO LIMIT)
    IR4 = 77B        (NO LIMIT)    IR5 = 77B        (NO LIMIT)
    IR6 = 77B        (NO LIMIT)    IR7 = 77B        (NO LIMIT)
    IR8 = 77B        (NO LIMIT)
    M1  = 77B        (   1.000)    M2  = 74B        (   0.143)
    M3  = 6B         (   0.006)    M4  = 77B        (   0.003)
    AD  = 77B        (   0.000)

    VALIDATED PROJECT NUMBERS ARE -
0E00356                          0E00361
0E00377                          05527520
5076M52
```

Figure 3-5. Charge Number List

```
PROFILE,OP=I,CN=0552,PN=0E00356.                         yy/mm/dd. hh.mm.ss.

  CONTROLS FOR PROJECT NUMBER 0E00356

    CREATION DATE    83/04/27.    LAST CHANGE DATE 83/06/30.
    LAST UPDATE DATE UNDEFINED    LAST UPDATE TIME UNDEFINED
    ENTRY *ACTIVE*                EXPIRATION DATE  UNDEFINED
    TI  = 0000                    TO  = 0000
    PFN = PPROLOG                 EFN = PEPILOG
    PUN = USERNAM                 EUN = USERNAM
    PPW = *******†                 EPW = *******†
    PCR = A                       ISV = 77B        (NO LIMIT)
    SML = (NO LIMIT)              SMA = 45707
    SIL = (NO LIMIT)              SIA = 45707
    LR1 = (NO LIMIT)              AR1 = 0
    LR2 = (NO LIMIT)              AR2 = 0
    LR3 = (NO LIMIT)              AR3 = 0
    LR4 = (NO LIMIT)              AR4 = 0
    LR5 = (NO LIMIT)              AR5 = 0
    LR6 = (NO LIMIT)              AR6 = 0
    LR7 = (NO LIMIT)              AR7 = 0
    LR8 = (NO LIMIT)              AR8 = 0

    USER NUMBERS VALID TO USE 0E00356
DRK2642   JRL2422   KPH2421   MJP2423   REN2424
SDL2622


†If a password is defined for the project prologue or project epilogue, the password
 field appears as a string of asterisks.  If no password is defined, the field is blank.
```

Figure 3-6. Project Number List (OP=I,CN=xxxx,PN=xxxxxxx)

```
PROFILC FULL FILE LIST      OF MASTER USER      GSY2447   PAGE     1
        CHARGE NUMBER                            yy/mm/dd  hh.mm.ss.

    1. 0552
         CONTROLS FOR CHARGE NUMBER 0552

           CREATION DATE    yy/mm/dd.    EXPIRATION DATE  UNDEFINED
           ENTRY *ACTIVE*                PROJECT COUNT = 5
           MU  = GSY2447                 PCL = (NO LIMIT)
           ISL = 77B        (NO LIMIT)   IR1 = 77B        (NO LIMIT)
           IR2 = 77B        (NO LIMIT)   IR3 = 77B        (NO LIMIT)
           IR4 = 77B        (NO LIMIT)   IR5 = 77B        (NO LIMIT)
           IR6 = 77B        (NO LIMIT)   IR7 = 77B        (NO LIMIT)
           IR8 = 77B        (NO LIMIT)
           M1  = 77B        (   1.000)   M2  = 74B        (   0.143)
           M3  = 6B         (   0.006)   M4  = 77B        (   0.003)
           AD  = 77B        (   0.000)

         CONTROLS FOR PROJECT NUMBER 0E00356

           CREATION DATE    yy/mm/dd.    LAST CHANGE DATE yy/mm/dd.
           LAST UPDATE DATE UNDEFINED    LAST UPDATE TIME UNDEFINED
           ENTRY *ACTIVE*                EXPIRATION DATE  UNDEFINED
           TI  = 0000                    TO  = 0000
           PFN = PPROLOG                 EFN = PEPILOG
           PUN = USERNAM                 EUN = USERNAM
           PPW = *******†                EPW = *******†
           PCR = A                       ISV = 77B        (NO LIMIT)
           SML = (NO LIMIT)              SMA = 45707
           SIL = (NO LIMIT)              SIA = 45707
           LR1 = (NO LIMIT)              AR1 = 0
           LR2 = (NO LIMIT)              AR2 = 0
           LR3 = (NO LIMIT)              AR3 = 0
           LR4 = (NO LIMIT)              AR4 = 0
           LR5 = (NO LIMIT)              AR5 = 0
           LR6 = (NO LIMIT)              AR6 = 0
           LR7 = (NO LIMIT)              AR7 = 0
           LR8 = (NO LIMIT)              AR8 = 0

           USER NUMBERS VALID TO USE 0E00356
       DRK2642   JRL2422   KPH2421   MJP2423   REN2424
       SDL2622


†If a password is defined for the project prologue or project epilogue, the password
 field appears as a string of asterisks.  If no password is defined, the field is blank.
```

Figure 3-7. Master User Full File List (OP=L,LO=FM) (sheet 1 of 2)

```
CONTROLS FOR PROJECT NUMBER OE00361

  CREATION DATE    yy/mm/dd.     LAST CHANGE DATE yy/mm/dd.
  LAST UPDATE DATE UNDEFINED     LAST UPDATE TIME UNDEFINED
  ENTRY *ACTIVE*                 EXPIRATION DATE  UNDEFINED
  TI  = 0000                     TO  = 0000
  PFN = PPROLOG                  EFN = PEPILOG
  PUN = USERNAM                  EUN = USERNAM
  PPW = *******†                 EPW = *******†
  PCR = A                        ISV = 77B        (NO LIMIT)
  SML = (NO LIMIT)               SMA = 43777
  SIL = (NO LIMIT)               SIA = 43777
  LR1 = (NO LIMIT)               AR1 = 0
  LR2 = (NO LIMIT)               AR2 = 0
  LR3 = (NO LIMIT)               AR3 = 0
  LR4 = (NO LIMIT)               AR4 = 0
  LR5 = (NO LIMIT)               AR5 = 0
  LR6 = (NO LIMIT)               AR6 = 0
  LR7 = (NO LIMIT)               AR7 = 0
  LR8 = (NO LIMIT)               AR8 = 0

  USER NUMBERS VALID TO USE OE00361
JJC2426   JMC2171   JXC2566   RLM2155   SDL2622


†If a password is defined for the project prologue or project epilogue, the password
 field appears as a string of asterisks.  If no password is defined, the field is blank.
```

Figure 3-7. Master User Full File List (OP=L,LO=FM) (sheet 2 of 2)

```
PROFILC CHARGE NUMBER LIST  OF MASTER USER      PLL2361   PAGE     1
        CHARGE NUMBER                                yy/mm/dd.  hh.mm.ss.


     1. ABCD12
     2. 0411
     3. 0520
     4. 0522
     5. 0523
     6. 0552
     7. 0560
```

Figure 3-8. Master User Charge Number List (OP=L,LO=CM)

```
PROFILC PROJECT NUMBER LIST OF MASTER USER      PLL2361   PAGE     1
        CHARGE NUMBER                                yy/mm/dd.  hh.mm.ss.

     1. 0552
          VALIDATED PROJECT NUMBERS ARE -
        0E00356                        0E00361
        0E00377                        05527520
        5076M52
```

Figure 3-9. Master User Project Number List (OP=L,LO=PM)

## INPUT DIRECTIVES

Directives are available as input to PROFILE for adding or updating information concerning each charge number. The input stream for a PROFILE create (OP=C) or update (OP=U) is divided into two types of entries: charge number entries and directives.

A charge number entry must begin with a / in column 1 or with the CN= or ACN= directive. The charge number name is the one to 10 characters following the / or directive. A separator ends this name. A separator can be any nonalphanumeric character (except / or *), end-of-line, or end-of-card. Additional directives may immediately follow the separator.

The directives associated with a particular charge number must follow the charge number entry. All directives following a charge number entry apply to that charge number until another charge number entry occurs. A particular charge number can appear only once in an input stream on a creation run.

The directives applying to a particular charge number are further divided into master user and SRU multipliers, project number, and associated project number entries. The project number entry contains the data identifiers that establish the control values for this project and the list of user names that may access this project. The occurrence of duplicate project numbers under the same charge number entry is not allowed on a creation run.

Figure 3-10 illustrates a sample input stream.

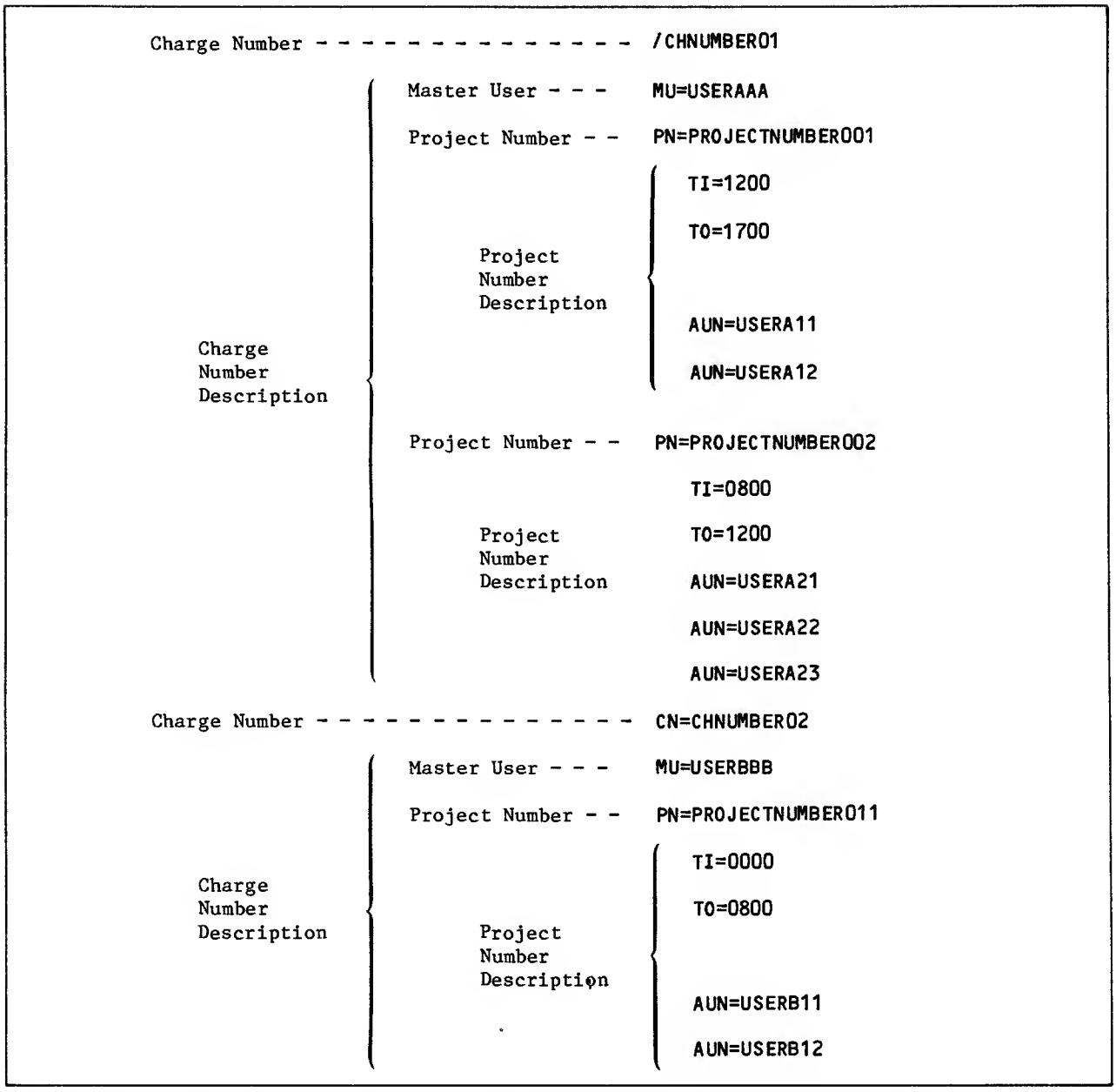


Figure 3-10. Sample Input Stream for Use with PROFILE

All directives following a charge number entry are in free format to column 72. Directives cannot be split between cards or lines. Blanks are ignored.

The following is the list of parameters and their descriptions.

| Parameter | Description |
|---|---|
| ACN=cn | Add or activate charge number. A charge number is either created if it does not already exist or activated if it is inactive. However, the charge number must not exist when OP=C is specified. |
| AD=n | Index for the SRU constant used for charging resources not directly measurable by the system for this charge number. This may be one or two numeric digits. A radix may follow to indicate decimal (D) or octal (B). If the radix is omitted, decimal is assumed. The maximum and default value of $77_8$ gives system default. You can set AD only from a system origin job. (Refer to Multiplier Index Values and Actual Multiplier Values for more information on the use of this parameter.) |
| APN=pn | Add or activate project number. A project number is either created if it does not already exist or activated if it is inactive. However, the project number must not exist when OP=C is specified. A master user can specify this entry. |
| ARn=x | For installation accumulator n, where n = 1,2,...or 8. (The system does not update these fields. Each site must provide this capability, if desired.) For each n, ARn specifies the current number of resource units the project used. When ARn surpasses LRn, the project is not available to users until either the limit or the accumulator is respecified. |
| AUN=un | Add user name. A one- to seven-character alphanumeric identification of the individual or individuals with access to the project or projects under which this user name is entered. It is also the identification used by VALIDUs to establish system access (MODVAL Validation File Manager).<br><br>A single charge and project number can have a maximum of 4095 validated user names.<br><br>If you do not specify any user names for a project, all user names are allowed to use it. A master user can specify this entry. |
| CEX=yymmdd | Charge number expiration date expressed as yymmdd. When the current date passes the expiration date, the charge number entry and all project entries under it are unavailable to users. However, a value of zero implies no restriction. |
| CN=cn | Charge number. This is a one- to 10-character alphanumeric designation (including *). This directive performs the same function as the /. The specified charge number must exist and be active unless OP=C or CV is also specified. The parameter is then interpreted as ACN. A master user can specify this entry. |

| Parameter | Description |
|---|---|
| DCN=cn | Deactivate charge number. This directive does not destroy the specified charge number entry but sets its status such that the entry and all project entries under it are unavailable to users. PROFILE reformatting runs purge all deactivated entries. This entry is not allowed when OP=C is specified. |
| DPN=pn | Deactivate project number. This directive does not destroy the specified project number entry but sets its status such that the entry is not available to users. PROFILE reformating runs purge all deactivated entries. This entry is not allowed when OP=C is specified. A master user can specify this entry. |
| DUN=un | Delete user name. Deletes the user name from the list of those who may access the project number. This entry can be specified by a master user. |
| EFN=efn | Epilogue file name. A one- to seven-character alphanumeric file name that identifies the file on which the project epilogue program resides for a specified charge and project number. The project epilogue can be a procedure or a binary program. A null value means no project epilogue program is defined. A master user can specify this entry. |
| EPW=epw | Epilogue file password. A one- to seven-character alphanumeric (including *) password associated with the project epilogue file. A null value means no password is present. A master user can specify this entry. |
| EUN=eun | Epilogue file user name. A one- to seven-character alphanumeric (including *) user name under which the project epilogue file is cataloged. You must define an epilogue user name to execute the project epilogue file. A null value means the file is accessed from the user's catalog. A master user can specify this entry. |
| IRn=x | Index for default value of installation limit register n, where n = 1,2,..,or 8. |
| ISL=x | Index for default value of the SRU installation limit register. |
| ISV=x | Index for SRU validation limit. It indicates the maximum SRU accumulation for any job using this charge and project number. A master user can specify this entry. |
| LRn=x | Installation limit register n, where n = 1,2,..,or 8. For each n, LRn specifies the maximum number of resource units (as defined by the installation) the project can use. A value of zero implies no restriction. |

| Parameter | Description |
|---|---|
| MU=mun | Master user name having the capacity to update, inquire, and make listings for the projects entered under the same charge number as those of this master user. A null value clears a defined master user name.<br><br>The master user must use this user name in jobs in which he or she is exercising project-oriented privileges.<br><br>The master user name consists of from one to seven alphanumeric characters.<br><br>There can be only one master user per charge number. |
| M1=n | Index used by the SRU multiplier to weight the calculated system resources not directly measurable for this charge number. The index may be one or two numeric digits. A radix may follow to indicate decimal (D) or octal (B). If the radix is omitted, decimal is assumed. The maximum and default value of $77_8$ gives system default. You can set M1 only from a system origin job. (Refer to Multiplier Index Values and Actual Multiplier Values for more information on the use of this parameter.) |
| M2=n | Index used by the SRU multiplier to weight input and output usage for this charge number. The index may be one or two numeric digits. A radix may follow to indicate decimal (D) or octal (B). If the radix is omitted, decimal is assumed. The maximum and default value of $77_8$ gives system default. You can set M2 only from a system origin job. (Refer to Multiplier Index Values and Actual Multiplier Values for more information on the use of this parameter.) |
| M3=n | Index used by the SRU multiplier to weight central memory field length usage for this charge number. The index may be one or two numeric digits. A radix may follow to indicate decimal (D) or octal (B). If the radix is omitted, decimal is assumed. The maximum and default value of $77_8$ gives system default. You can set M3 only from a system origin job. (Refer to Multiplier Index Values and Actual Multiplier Values for more information on the use of this parameter.) |
| M4=n | Index used by the SRU multiplier to weight extended memory field length usage for this charge number. The index may be one or two numeric digits. A radix may follow to indicate decimal (D) or octal (B). If the radix is omitted, decimal is assumed. The maximum and default value of $77_8$ gives system default. You can set M4 only from a system origin job. (Refer to Multiplier Index Values and Actual Multiplier Values for more information on the use of this parameter.) |
| PCL=pcl | Project count limit. Maximum number of projects allowed under this charge number. |

| Parameter | Description |
|---|---|
| PCR=pcr | Prologue charge required. This entry specifies under what conditions the charge required flag is set upon termination of the project prologue program. |

| Entry | Description |
|---|---|
| PCR=null | Charge required flag is not set (default). |
| PCR=U | Charge required flag is set unconditionally. |
| PCR=A | Charge required flag is set only if the project prologue program aborts. |

A master user can specify this entry.

| | |
|---|---|
| PEX=yymmdd | Project number expiration date expressed as yymmdd. When the current date passes the expiration date, the project number is not available to users. A value of zero implies no restriction. A master user can specify this entry. |
| PFN=pfn | Prologue file name. A one- to seven-character alphanumeric file name that identifies the file on which the project prologue program resides for a specified charge and project number. The project prologue can be a procedure or a binary program. A null value means no project prologue program is defined. A master user can specify this entry. |
| PN=pn | Project number. This is a one- to 20-character alphanumeric (including *) designation of a particular customer activity. The specified project number must exist and be active unless OP=C or CV is also specified. This parameter is then interpreted as APN. A master user can specify this entry. |
| PPW=ppw | Prologue file password. A one- to seven-character alphanumeric (including *) password associated with the project prologue file. A null value means no password is present. A master user can specify this entry. |
| PUN=pun | Prologue file user name. A one- to seven-character alphanumeric (including *) user name under which the project prologue file is cataloged. A prologue user name must be defined before you can execute the project prologue file. A null value means the file is accessed from the user's catalog. A master user can specify this entry. |
| SIA=sia | SRU installation accumulator. This value specifies the current number of accumulated SRUs the project used. The accumulator is updated at the end of a job and also when a second or subsequent CHARGE command is issued. When the SIA value exceeds the SIL value, the project is not available to users until either the limited or the accumulator is respecified. |
| SIL=sil | SRU installation limit register. This value specifies the maximum number of accumulated SRUs the project may use, as controlled by the installation. A value of zero implies no restriction. |

| Parameter | Description |
|---|---|
| SMA=sma | SRU master user accumulator. This value specifies the current number of accumulated SRUs the project has used. The accumulator is updated at the end of a job or terminal session and/or when a second or subsequent CHARGE command is issued. When the SMA value exceeds the SML value, the project is not available to users until either the limit or the accumulator is respecified. A master user can specify this entry. |
| SML=sml | SRU master user limit register. This value specifies the maximum number of accumulated SRUs the project may use, as controlled by the master user. However, a value of zero implies no restriction. A master user can specify this entry. |
| TI=ti | Time of day before which the validated user cannot use this project number. This is expressed in 4-digit military time notation. A radix may follow to indicate decimal (D) or octal (B). If the radix is omitted, decimal is assumed. Maximum value is 2400. A master user can specify this entry. |
| TO=to | Time of day after which the validated user cannot use this project number. This is expressed in 4-digit military time notation. A radix may follow to indicate decimal (D) or octal (B). If the radix is omitted, decimal is assumed. Maximum value is 2400; however, TI=TO implies no restriction. A master user can specify this entry. |

## PROFILE CONSOLE INPUT

You can create a PROFILa file only by calling PROFILE from the console. Likewise, you can restructure an existing PROFILa file, return it to source, or read it to an output file as a full file listing only from the console. The remaining operations (update, inquiry, and master user listings) you can execute from console, batch (refer to PROFILE Batch Input), or a terminal (refer to PROFILE Execution from a Terminal).

A new PROFILa file can be created from the console by means of a DIS job. You call a preestablished input file of control values, then enter the PROFILE command with OP=C. The following example, given an input file (INPUT) with control values for structuring a new PROFILa file, is a creation run from the console.

```
X.DIS.

SUI,377777.

NOTE,INPUT.+/CN1000 (where CN1000 is the first charge number to be created.)

PACK,INPUT.

PROFILE,OP=C,I=INPUT.

ISF,E=PROFILa.
```

Use the K display only for an update. With the K option, you enter directives from the console instead of from an input file. If you enter directives for an existing charge and project number, the control values change according to the directive.

Call the K display with:

```
X,PROFILE.
```

The B,O display indicates the job sequence name assigned to PROFILE. To the right of this entry the following intensified message appears:

```
REQUEST *K* DISPLAY
```

Type:

```
K,jsn.              (where jsn is the job sequence name for PROFILE.)

KK.
```

This brings the initial K display for PROFILa to the left screen (refer to figure 3-11) and PROFILE K display commands to the right screen (refer to figure 3-12). You are now ready to create or update. If you enter the charge number, figure 3-13 appears on the left screen. When you enter a particular project number, the three screens shown in figure 3-14 are available. The following example illustrates an update input stream.

```
K./CHARGNUM1        (Use the / when PROFILE is updating an existing charge number.)

K.MU=MUSE1

K.END

K./CHARGNUM2

K.MU=MUSE2

K.END

K.STOP
```

```
K.  PROFILE.          JSN


PROFILE

PROFILC       CREATED   yy/mm/dd.      LAST MODIFIED   yy/dd/mm.
```

Figure 3-11. PROFILE Initial Display, Left Screen

```
K.  PROFILE.          JSN


                    PROFILE K DISPLAY COMMANDS

DROP          DROP DIRECTIVES ENTERED SINCE CHARGE OR PROJECT.
END           UPDATE PROFILE FILE AND TERMINATE CURRENT CHARGE.
STOP          TERMINATE PROCESSING.
+             PAGE LEFT SCREEN FORWARD.
-             PAGE LEFT SCREEN BACKWARD.


                        PROFILE DIRECTIVES

ACN=CHARN     ADD OR ACTIVATE CHARGE.
APN=PROJN     ADD OR ACTIVATE PROJECT.
CN=CHARN      SET CHARGE NUMBER, ACTIVE CHARGE MUST EXIST.
DCN=CHARN     DEACTIVATE CHARGE.

DPN=PROJN     DEACTIVATE PROJECT.
PN=PROJN      SET PROJECT NUMBER, ACTIVE PROJECT MUST EXIST.
/CHARN        SET CHARGE NUMBER, ACTIVE CHARGE MUST EXIST.
```

Figure 3-12. PROFILE, Right Screen

```
K.  PROFILE.          JSN



PROFILE

PROFILC       CREATED   yy/mm/dd.      LAST MODIFIED   yy/mm/dd.

CHARGE NUMBER   1282

 CREATION DATE    83/04/27.        EXPIRATION DATE   UNDEFINED
 ENTRY            *ACTIVE*         PROJECT COUNT     3

 MU =                                PCL = (NO LIMIT)
 M1 =  77B        (   1.000)         M2 =  77B        (   0.100)
 M3 =  77B        (   0.003)         M4 =  77B        (   0.003)
 AD =  77B        (   0.000)         ISL = 77B        (NO LIMIT)

 IR1 = 77B        (NO LIMIT)         IR2 = 77B        (NO LIMIT)
 IR3 = 77B        (NO LIMIT)         IR4 = 77B        (NO LIMIT)
 IR5 = 77B        (NO LIMIT)         IR6 = 77B        (NO LIMIT)
 IR7 = 77B        (NO LIMIT)         IR8 = 77B        (NO LIMIT)


      /1282

K.
```

Figure 3-13. PROFILE Charge Number, Left Screen

## PROFILE BATCH INPUT

As a master user, you can initiate an update, inquiry, or listing of the projects under your charge number by way of a batch job. The following is an example of a batch update in which you add a time in (TI) and a time out (TO) to one of your projects (PROJ2).

```
JOBUPDA.

USER,username,password,familyname.

PROFILE,OP=U.

end-of-record

/CHARGNUM1

PN=PROJ2

TI=1400

TO=1800

end-of-information
```

## PROFILE EXECUTION FROM A TERMINAL

As a master user, you can also initiate an update, inquiry, or listing of the projects under your charge number from an interactive terminal. To do this you must have master user status validated at login. After this validation is affirmed, you, as a master user, must enter the batch subsystem or use the X command in order to use the PROFILE command.

```
K.  PROFILE.          JSN


PROFILE                                                  PAGE 1 OF 3

PROFILC        CREATED   yy/mm/dd.      LAST MODIFIED   yy/mm/dd.

CHARGE NUMBER   1282

 CREATION DATE     83/04/27.        EXPIRATION DATE   UNDEFINED
 ENTRY             *ACTIVE*         PROJECT COUNT     3

 MU =                                PCL = (NO LIMIT)
 M1 =  77B         (   1.000)        M2 =  77B         (   0.100)
 M3 =  77B         (   0.003)        M4 =  77B         (   0.003)
 AD =  77B         (   0.000)        ISL = 77B         (NO LIMIT)

 IR1 = 77B         (NO LIMIT)        IR2 = 77B         (NO LIMIT)
 IR3 = 77B         (NO LIMIT)        IR4 = 77B         (NO LIMIT)
 IR5 = 77B         (NO LIMIT)        IR6 = 77B         (NO LIMIT)
 IR7 = 77B         (NO LIMIT)        IR8 = 77B         (NO LIMIT)


      PN=721PROJECT

K.
```

Figure 3-14. PROFILE Charge and Project Numbers, Left Screen (sheet 1 of 3)

```
K.  PROFILE.          JSN


PROFILE                                                  PAGE 2 OF 3

PROJECT NUMBER  721PROJECT

 CREATION DATE       yy/mm/dd.     LAST CHANGE DATE   yy/mm/dd.
 LAST UPDATE DATE    UNDEFINED     LAST UPDATE TIME   UNDEFINED
 ENTRY               *ACTIVE*      EXPIRATION DATE    UNDEFINED

 TI =  0000                        TO =  0000
 PFN =                             EFN =
 PUN =                             EUN =
 PPW =                             EPW =
 PCR =                             ISV = 77B       (NO LIMIT)
 SML = (NO LIMIT)                  SMA = 0




K.
```

Figure 3-14. PROFILE Charge and Project Numbers, Left Screen (sheet 2 of 3)

```
K.  PROFILE.          JSN


PROFILE                                                  PAGE 3 OF 3

PROJECT NUMBER  721PROJECT

 SIL = (NO LIMIT)                  SIA = 0
 LR1 = (NO LIMIT)                  AR1 = 0
 LR2 = (NO LIMIT)                  AR2 = 0
 LR3 = (NO LIMIT)                  AR3 = 0
 LR4 = (NO LIMIT)                  AR4 = 0

 LR5 = (NO LIMIT)                  AR5 = 0
 LR6 = (NO LIMIT)                  AR6 = 0
 LR7 = (NO LIMIT)                  AR7 = 0
 LR8 = (NO LIMIT)                  AR8 = 0


K.
```

Figure 3-14. PROFILE Charge and Project Numbers, Left Screen (sheet 3 of 3)

## UPDATE FROM A TERMINAL

As an interactive master user, you can initiate an update by issuing the command PROFILE,OP=U. Once this is initiated, the system prints the following block of information at the terminal.

```
THE FOLLOWING ARE VALID INPUT DIRECTIVES FOR
UPDATE-
    CN OR   /     -  CHARGE NUMBER.
    PN      -  PROJECT NUMBER.
    APN     -  ADD OR ACTIVATE PROJECT NUMBER.
    DPN     -  DEACTIVATE PROJECT NUMBER.
    PEX     -  PROJECT NUMBER EXPIRATION DATE.
    TI      -  TIME IN.
    TO      -  TIME OFF.
    PFN     -  PROLOGUE FILE NAME.
    PUN     -  PROLOGUE USER NAME.
    PPW     -  PROLOGUE PASSWORD.
    PCR     -  PROLOGUE CHARGE REQUIRED OPTION.
               NULL   -  CHARGE REQUIRED NOT SET.
               U      -  UNCONDITIONAL.
               A      -  ON ABORT.
    EFN     -  EPILOGUE FILE NAME.
    EUN     -  EPILOGUE USERNAME.
    EPW     -  EPILOGUE PASSWORD.
    ISV     -  SRU VALIDATION LIMIT INDEX.
    SML     -  SRU MASTER USER LIMIT.
    SMA     -  SRU MASTER USER ACCUMULATOR.
    AUN     -  ADD USER NUMBER.
    DUN     -  DELETE USER NUMBER.
    ACN     -  ADD OR ACTIVATE CHARGE NUMBER.
    DCN     -  DEACTIVATE CHARGE NUMBER.
    MU      -  MASTER USER NUMBER.
    PCL     -  PROJECT COUNT LIMIT.
    M1   -  M4    -     SRU MULTIPLIER INDICES.
    AD      -  SRU CONSTANT INDEX.
    CEX     -  CHARGE NUMBER EXPIRATION DATE.
    ISL     -  INSTALLATION SRU LIMIT INDEX.
    IR1  -  IR8   -     INSTALLATION LIMIT INDICES.
    SIL     -  SRU INSTALLATION LIMIT.
    SIA     -  SRU INSTALLATION ACCUMULATOR.
    LR1  -  LR8   -     INSTALLATION LIMIT REGISTERS.
    AR1  -  AR8   -     INSTALLATION ACCUMULATORS.
A NULL LINE COMPLETES DIRECTIVE INPUT PROCESSING.
```

Only for users with special accounting privileges.

You can suppress this informative printout by using the command option OP=T instead of OP=U. In all other respects, the operation of T is identical to that of U.

If charge and project numbers are required, the example will run as follows:

```
/ENTER DIRECTIVES
?/CHARG1
? PN=PROJ2
? TI=0800
? TO=1200
? (CR)
PROFILa UPDATED.
/
```

## INQUIRY FROM A TERMINAL

As a master user, you can request information on your current charge number and project numbers by means of an inquiry from a terminal. To do this, issue the command

```
PROFILE,OP=I,CN=chargenumber,PN=projectnumber.
```

where chargenumber is your charge number and projectnumber is the particular project for which you want information.

If you do not supply the charge number on the PROFILE command, PROFILE will output

```
ENTER CHARGE NUMBER
```

when it processes the command. You must type in the appropriate charge number. If you enter a null line, processing will end.

If you do not enter a project number on the command, or if you supply a charge number in response to ENTER CHARGE NUMBER, PROFILE will issue

```
ENTER PROJECT NUMBER
```

to the terminal and wait for you to enter the desired project number. If you enter a null line, output will consist of a list of valid project numbers under this charge number, and PROFILE will again respond

```
ENTER PROJECT NUMBER
```

If you enter a project number, output will consist of a list of the controls for and valid users of this project number. PROFILE will again respond

```
ENTER PROJECT NUMBER
```

until you enter a null line to indicate end of processing for the current charge number.

After output of the desired project number information , PROFILE issues

```
ENTER CHARGE NUMBER
```

to the terminal and waits for you to enter another charge number. If you enter a null line, processing will end.

## LISTING FROM A TERMINAL

As a master user, you can request an FM, CM, or PM listing from a terminal (refer to PROFILa Project Profile Manager). Figures 3-7, 3-8, and 3-9 show sample listings.

## CHARGE COMMAND†

The system routine CHARGE provides validation of your charge and project number. You will have to call CHARGE if the AW=CCNR option in your access word is not set (refer to MODVAL Validation File Manager). If a charge and project number are present in your validation file record (CN and PN MODVAL directives), these will be validated if no call to CHARGE is present.

When validation fails, the job is aborted and the appropriate error message is issued to the dayfile. If you are at a terminal, the message is returned to the terminal.

When validation is successful, the following events occur.

- Accounting information is written to the accounting dayfile (refer to Account Dayfile Messages for message formats).
- The accounting parameters associated with your charge and project numbers are inserted into the accounting formula (refer to the SRU Formula). They are used in calculating the billing unit until the end of the job or until another charge and project number are entered.
- The SRU accumulator is set to zero. The CP, MS, MT, and PF accumulators are not altered in any way. If you have selected the minimum charge installation option, and if the accumulated SRUs are less than the minimum charge amount, the minimum charge value is entered into the account dayfile (the Resource Accounting section describes the parameters and the minimum charge installation option).
- A project prologue program is executed if one is defined for the project number entered on the CHARGE command. If PCR=U is specified on the PROFILE command, the charge-required flag will be set upon termination of the project prologue program. If PCR=A is specified on the PROFILE command, the charge-required flag will be set only if the project prologue program aborts. When the charge-required flag is set, you must enter a valid CHARGE command to continue processing.

  The PCR=U option allows you as the master user to restrict the use of a project number to a single application executed as a project prologue program.

  The PCR=A option allows you as the master user to ensure that the project prologue program completes before any user programs can be run under the same project number. As a master user, you can use this feature to perform further validation checks on a user who executes a CHARGE command before allowing use of the project number. If the validation check were to fail, the project prologue program could execute the ABORT macro to set the charge-required flag for a binary program; or the project prologue program could execute a REVERT,ABORT command to set the charge-required flag for a procedure.

†Refer to NOS 2 Reference Set, Volume 3, for further information about the CHARGE command.

The following is the ordered list of the account dayfile and job dayfile messages issued whenever a new charge number is entered. These messages are not issued, however, when a required CHARGE command immediately follows an initial USER command.

```
hh.mm.ss.  jsn s.  UDCP, xxxxxx.xxxSECS.
hh.mm.ss.  jsn s.  UDMS, xxxxxx.xxxKUNS.
hh.mm.ss.  jsn s.  UDMT, xxxxxx.xxxKUNS.
hh.mm.ss.  jsn s.  UDPF, xxxxxx.xxxKUNS.
hh.mm.ss.  jsn s.  UDAD, xxxxxx.xxxKUNS.
hh.mm.ss.  jsn s.  UDAC, xxxxxx.xxxUNTS.
hh.mm.ss.  jsn s.  ACSR, xxxxxx.xxxUNTS.
hh.mm.ss.  jsn s.  ACCN, chargenumber, projectnumber.  (account dayfile only)
```

Section 5 contains a detailed description of account dayfile messages.

# RESOURCE ACCOUNTING 4

The basic accounting unit for NOS is the SRU. The SRU is a measurement of the resources used by a job or by a terminal session. The SRU algorithm combines measurements of the following resources into a single unit.

Central memory field length
Extended memory field length
CPU time
Mass storage usage
Magnetic tape usage
Permanent file usage
Matrix algorithm processor (MAP) usage
Application usage

The SRU calculation is dynamic; that is, each time the job or session uses additional amounts of the above resources, the SRU value is updated. The following sections provide the algorithm for calculating SRU values and a detailed description of SRU components.

The common deck COMSSRU contains the definitions for the SRU multipliers and associated parameters. It also defines the absolute ranges for these values. To obtain a listing of COMSSRU, assemble CALLSYS; the default values are shown. To change any default values, you must make modifications in COMSSRU and reassemble the appropriate NOS decks. These changes should normally be made as part of the installation process (refer to NOS 2 Installation Handbook for more information).

## SRU FORMULA

The system uses the following formula for SRU computation.

$$SRU = M1[CP + M2 \times IO + M3(CP + IO)CM + M4(CP + IO)EM + MM \times MP + AUC] + AD$$

| Parameter | Description |
|---|---|
| CP | Central processor unit usage expressed in milliunits. The value of this parameter is determined by the following formula. |

$$CP = S0 \times CP0 + S1 \times CP1$$

| | |
|---|---|
| CP0 | Time accumulated on CPU 0 in milliseconds |
| CP1 | Time accumulated on CPU 1 in milliseconds |
| S0,S1 | Multipliers used to normalize CPU time when the system is running on a dual CPU machine |

| Parameter | Description |
|---|---|
| IO | A measure of the accumulated system activity related to input and output for a user. This parameter, expressed in milliunits, is defined by the following formula:<br><br>IO = S2 x MS + S3 x MT + S4 x PF<br><br>MS — Mass storage activity accumulator. The IO Increments section describes the components of this parameter in detail.<br><br>MT — Magnetic tape activity accumulator. The IO Increments section describes the components of this parameter in detail.<br><br>PF — Permanent file activity accumulator. The IO Increments section describes the components of this parameter in detail.<br><br>S2,S3,S4 — Multipliers used to weight MS, MT, and PF activity against one another. |
| CM | Central memory field length expressed in words divided by $1000_8$. |
| EM | Extended memory field length expressed in words divided by $1000_8$. |
| M1 | Multiplier used to scale the overall SRU value. |
| M2 | Multiplier used to weight the I/O activity against CPU time, central memory field length, and extended memory field length usage. |
| M3 | Multipliers used to weight central memory field length, CPU time, and I/O activity. |
| M4 | Multiplier used to weight extended memory field length, CPU time, and I/O activity. |
| MM | Multiplier used to scale MAP usage. |
| MP | A measure of the accumulated MAP activity for a user. |
| AUC | A measure of the accumulated application activity for a user. |
| AD | Incremental adder applied to the SRU value during accounting initialization. |

The multipliers S0 through S4 and MM, as well as the default values for units of MS, MT, PF, MP, and AUC, are installation options that do not change during system execution. The multipliers M1 through M4 and the adder AD are also installation options, but they may change after system activity has begun. The default values for M1 through M4 and AD are set during job or session initialization. When you enter a charge number, you may specify different values for M1 through M4 and AD for use in the SRU calculation (refer to PROFILE Console Input). These parameters are retained in PROFILa and provide the central site with the flexibility of varying the billing unit for selected users.

# SRU PARAMETERS

The following paragraphs describe the SRU parameters and list their absolute ranges and default values. The COMSSRU name is listed along with the default value for each parameter. When SRU parameter default values are set, these values must lie within the absolute range for each parameter.

## S0 AND S1

The system selects the values used for S0 and S1 at deadstart time from a list of multipliers defined for each type of CPU detectable by NOS. S0 is the primary multiplier and is used for all single CPU machines. For dual CPU machines, S0 is used for the first CPU (CPU 0) and S1 is used for calculations involving the second CPU (CPU 1). For example, if a site is running a 6700, the system assigns to S0 the value defined for a 6600 CPU and to S1 the value defined for a 6400 CPU. This allows a site with several systems to use different multipliers for different CPUs while using only one deadstart tape.

It is possible for you to transform this selection at deadstart by using the IPRDECK entry CPM. Use of this entry allows you to select any multiplier from the list in COMSSRU, which follows, to be used instead of the normally selected value. One advantage of this entry is that a site may charge differently for the use of a 6200 CPU or a 6400 CPU, although the software cannot normally detect the difference.

| COMSSRU Name | Default Value | Description |
|---|---|---|
| CP62 | 1.0 | 6200 CPU |
| CP64 | 1.0 | 6400 CPU |
| CP65 | 1.0 | 6500 CPU |
| CP66 | 1.0 | 6600 CPU |
| CP67 | 1.0 | 6700 CPU |
| CP71 | 1.0 | CYBER 71 CPU |
| CP72 | 1.0 | CYBER 72 CPU |
| CP73 | 1.0 | CYBER 73 CPU |
| CP74 | 1.0 | CYBER 74 CPU |
| C171 | 1.0 | CYBER 171 CPU |
| C172 | 1.0 | CYBER 172 CPU |
| C173 | 1.0 | CYBER 173 CPU |
| C174 | 1.0 | CYBER 174 CPU |
| C175 | 1.0 | CYBER 175 CPU |
| C176 | 1.0 | CYBER 176 CPU |
| C720 | 1.0 | CYBER 720 CPU |
| C730 | 1.0 | CYBER 730 CPU |

| COMSSRU Name | Default Value | Description |
|---|---|---|
| C740 | 1.0 | CYBER 740 CPU |
| C750 | 1.0 | CYBER 750 CPU |
| C760 | 1.0 | CYBER 760 CPU |
| C810 | 1.0 | CYBER 810 CPU |
| C815 | 1.0 | CYBER 815 CPU |
| C825 | 1.0 | CYBER 825 CPU |
| C830 | 1.0 | CYBER 830 CPU |
| C835 | 1.0 | CYBER 835 CPU |
| C840 | 1.0 | CYBER 840 CPU |
| C845 | 1.0 | CYBER 845 CPU |
| C850 | 1.0 | CYBER 850 CPU |
| C855 | 1.0 | CYBER 855 CPU |
| C860 | 1.0 | CYBER 860 CPU |
| C865 | 1.0 | CYBER 865 CPU |
| C875 | 1.0 | CYBER 875 CPU |
| C961 | 1.0 | CYBER 960-11 CPU |
| C963 | 1.0 | CYBER 960-31/32 CPU |
| C990 | 1.0 | CYBER 990 CPU |
| ICM1 | 1.0 | Installation-selected CPU multiplier values |
| ICM2 | 2.0 | |
| ICM3 | 3.0 | |
| ICM4 | 4.0 | |
| ICM5 | 5.0 | |

Absolute range: 0.1 to 50.0

## S2, S3, AND S4

These multipliers are used in the calculation of the IO parameter. In addition to providing weighting factors, they also convert units of resource usage (MS, MT, or PF) to milliunits of IO. For example, if the default value for S2 is used, 300 units of MS usage result in 300 milliunits of IO.

| COMSSRU Name | Default Value | Description |
|---|---|---|
| S2SR | 1.0 | MS multiplier (S2) |
| S3SR | 1.0 | MT multiplier (S3) |
| S4SR | 1.0 | PF multiplier (S4) |
| S5SR | 1.0 | OD multiplier (S5) |

Absolute range: 0.1 to 50.0

## M1

This multiplier is used as a scaling factor to increase or decrease the overall SRU value. This value may be changed from the system default for each charge number when the charge number is entered (refer to PROFILE Console Input and Multiplier Index Values and Actual Multiplier Values for further information).

| COMSSRU Name | Default Value | Description |
|---|---|---|
| M1SR | 1.0 | M1 multiplier |

Absolute range 0.1 to 25.5

### M2, M3, AND M4

These multipliers provide weighting of the various terms in the SRU calculation. You may change the values from the system default values for each charge number when you enter the charge number (refer to PROFILE Console Input and Multiplier Index Values and Actual Multiplier Values for further information).

| COMSSRU Name | Default Value | Description |
|---|---|---|
| M2SR | 0.100 | M2 multiplier |
| M3SR | 0.003 | M3 multiplier |
| M4SR | 0.003 | M4 multiplier |

Absolute range: 0.001 to 1.023

### MM

This multiplier is used as a scaling factor for the MAP term in the SRU calculation.

| COMSSRU Name | Default Value | Description |
|---|---|---|
| MPSR | 1 | MAP multiplier (MM) |

Absolute range: 1 to 100

### AD

The value assigned to this parameter is applied to the SRU value during accounting initialization of a job or session. It thus serves as a one-time overhead increment. You may change this value from the system default for each charge number when you enter the charge number (refer to PROFILE Console Input and Multiplier Index Values and Actual Multiplier Values for further information).

| COMSSRU Name | Default Value | Description |
|---|---|---|
| ADSR | 0 | Incremental adder (AD) |

Absolute range: 1 to 100

The adder is also incremented for certain system activity that is not directly charged to the user. These operations are such that the overhead involved can vary widely. In order to provide a consistent charge for this type of activity, the adder is used for the following operations.

| COMSSRU Name | Default Value | Operation |
|---|---|---|
| IAAC | 1 | USER command |
| IACH | 1 | CHARGE command |
| IARX | 1 | Resource commands (ASSIGN, LABEL, REQUEST, RESOURC, VSN) |

Absolute range: 0 to 63

## OTHER COMSSRU VALUES

In addition to the parameters that make up the SRU formula, the following values are also defined in COMSSRU.

### MINIMUM DISPLAY VALUE

This parameter defines the minimum value to be displayed at the end of each step in an interactive job. If the accumulated SRUs are less than this value, they are not displayed.

| COMSSRU Name | Default Value | Description |
|---|---|---|
| MDSR | 0.100 | Minimum display value |

Absolute range: 0.001 to 1.000

### MINIMUM CHARGE VALUE

This parameter defines the minimum SRU value to be applied against a charge number. If accumulated SRUs are less than this value, a charge equal to this value is applied.

| COMSSRU Name | Default Value | Description |
|---|---|---|
| MCSR | 1.000 | Minimum charge value |

Absolute range: 0.001 to 10.000

# IO INCREMENTS

The IO parameter in the SRU formula is a measure of the accumulated input and output system activity for a user. It accounts for MS activity, MT activity, OD activity, and PF activity. Central site-defined increments control this parameter. The increments are assigned to various system functions such as data transfer and file positioning.

This section describes the increments of MS, MT, OD, and PF, which make up the measurable portion of the IO parameter. The IO increments are listed with COMSSRU names, default values, and absolute ranges.

## MS INCREMENTS

The formula for calculating the MS increment is as follows:

$$\text{MS increment} = \text{operation charge} + \text{penalty} + (\text{PRUs transferred} \times 2^{\text{IMPT}})$$

This system applies operation charges for the defined functions as follows:

| COMSSRU Name | Default Increment | MS Activity |
|---|---|---|
| IMCL | 1 | Close |
| IMCS | 1 | Control statement |
| IMLL | 1 | Library load |
| IMMS | 1 | Dayfile message |
| IMOP | 1 | Open (There is no charge if the file is assigned to a terminal or if it is nonrandom and assigned to mass storage.) |
| IMRD | 2 | Read |
| IMRU | 1 | Return, unload, or evict (There is no charge if the file is not present.) |
| IMSK | 2 | Skip (There is no charge if the file is assigned to a terminal or if it is nonrandom and assigned to mass storage.) |
| IMWT | 2 | Write or overwrite |

Absolute range for MS increments: 0 to 63

The rewind and indefinite skip backward (skip count=$777777_8$) functions incur no operation change.

The close return and close unload functions incur an operation charge of

IMCL + IMRU.

The system applies an additional penalty for read-with-list operations (READLS, RPHRLS) based on the positioning interval.

| COMSSRU Name | Default Value | MS Activity |
|---|---|---|
| IMPL | 128 | Positioning interval for IMRL penalty |
| IMRL | 3 | Read-with-list |

For each random repositioning for a read-with-list operation, the system adds a penalty of IMRL for the following cases:

- When the random address specified by the next list entry is less than the previous random address (requiring a backward repositioning).
- When the random address specified by the next list entry exceeds IMPL PRUs forward from the previous position.

The formula for calculating the increments charged for PRUs transferred is as follows:

Number of increments = number of PRUs transferred x $2^{IMPT}$

| COMSSRU Name | Default Value | MS Activity |
|---|---|---|
| IMPT | 2 | Combined input and output (CIO) read, write, skip, open, and close operations requiring data transfer to/from mass storage (does not include system sector or EOI sector transfers) |

The system accumulates the number of PRUs transferred for all operations requiring a data transfer, including the following.

- CIO read, write, and skip
- Random file directory positioning
- Transfer for open and close operations
- Skip backwards to end of record and end of file mark (EOR or EOF) (there are no charges for the excess PRUs read to determine EOR and EOF boundaries).
- Random open directory positioning (there are no charges for the excess PRUs read to determine EOR and EOF boundaries).

## MT INCREMENTS

The formula for calculating the MT increment is as follows:

MT increment = (tape blocks transferred) x (operation charge)

There is a charge to the following increments for each magnetic tape operation.

| COMSSRU Name | Default Increment | MT Activity |
|---|---|---|
| ITCL | 1 | Open or close |
| ITPO | 2 | Position |
| ITRL | 5 | Read L tape |
| ITRW | 4 | Read or write |
| ITWL | 6 | Write L tape |

Absolute range for MT increments: 0 to 63

## OD INCREMENTS

The formula for calculating the OD increment is as follows:

OD increment = operation charge + (PRUs transferred x $2^{IMPT}$)

The system applies operation charges for the defined functions as follows:

| COMSSRU Name | Default Increment | OD Activity |
|---|---|---|
| IOCL | 1 | Close |
| IOOP | 1 | Open |
| IORD | 2 | Read |
| IORU | 1 | Return, unload, or evict (There is no charge if the file is not present.) |
| IOSK | 2 | Skip |
| IOWT | 2 | Write |

Absolute range for OD increments: 0 to 63

The rewind and indefinite skip backward (skip count=$777777_8$) functions incur no operation charge.

The close return and close unload functions incur an operation charge of

IOCL + IORU.

The formula for calculating the increments charged for PRUs transferred is as follows:

Number of increments = number of PRUs transferred x $2^{IMPT}$

| COMSSRU Name | Default Increment | OD Activity |
|---|---|---|
| IMPT | 2 | Combined input and output (CIO) read, write, skip, open, and close operations requiring data transfer to/from optical disk (does not include system sector or EOI sector transfers) |

The system accumulates the number of PRUs transferred for all operations requiring a data transfer, including the following:

- CIO read, write, and skip
- Random file directory positioning
- Transfer for open and close operations
- Skip backwards to end of record and end of file mark (EOR or EOF) (there are no charges for the excess PRUs read to determine EOR and EOF boundaries).
- Random open directory positioning (there are no charges for the excess PRUs read to determine EOR and EOF boundaries).

## PF INCREMENTS

The formula for calculating the PF increment is as follows:

PF increment = operation charge + IPPR (PRUs transferred/IPPN)

There is a charge to the following increments for each permanent file operation.

| COMSSRU Name | Default Increment | PF Activity |
|---|---|---|
| IPAC | 1 | SETPFAC |
| IPAD | 1 | Alternate device access |
| IPAF | 1 | SETAF |
| IPAL | 1 | SETPFAL |
| IPAN | 1 | ASSIGNPF |
| IPAP | 20 | APPEND |
| IPAT | 4 | ATTACH |
| IPCE | 0 | Catalog entry returned |
| IPCG | 1 | CHANGE |
| IPCS | 4 | Catalog search |
| IPCT | 1 | CATLIST |
| IPDD | 1 | DROPDS |
| IPDF | 4 | DEFINE |
| IPDI | 1 | DROPIDS |
| IPDP | 1 | DELPFC |
| IPGT | 1 | GET or OLD |
| IPPA | 1 | Permit file access |
| IPPG | 1 | PURGE |
| IPPM | 1 | PERMIT |
| IPRP | 1 | REPLACE |
| IPRS | 1 | RPFSTAT |
| IPSA | 1 | SETASA |
| IPSD | 1 | SETDA |
| IPSP | 1 | STAGEPF |
| IPSV | 1 | SAVE |
| IPUA | 1 | UATTACH |
| IPUG | 1 | UGET |
| IPUR | 1 | UREPLACE |
| IPVA | 1 | VALIDUs access |

There is charge to the following increment each time a specified number of PRUs are transferred.

| COMSSRU Name | Default Increment |
|---|---|
| IPPR | 4 |

The following specifies the number of PRUs transferred before the IPPR increment is charged.

| COMSSRU Name | Default Value | PF Activity |
|---|---|---|
| IPPN | 10 | Using the default value, the IPPR increment is charged each time 10 PRUs are transferred. |

Absolute range for PF increments: 0 to 63

Example:

The charge for an ATTACH,filename/PN=packname,UN=username command is calculated as follows:

IPAT+IPAD+IPVA+IPCS+IPPA (if permit data is available)

## EXAMPLE OF SRU CALCULATION

This section illustrates how an SRU value is obtained. The SRU formula is as follows:

SRU=M1 [CP + M2 x IO + M3 (CP + IO) CM + M4 (CP + IO)EM + MM x MP + AUC] + AD

SRU section describes the parameters. For this example, all default values are assumed except AD, which equals 1.0. Therefore, the following parameters are known.

| | | |
|---|---|---|
| S0 = 1.0 | M1 = 1.0 | AD = 1.0 |
| S1 = 1.0 | M2 = 0.100 | |
| S2 = 1.0 | M3 = 0.003 | |
| S3 = 1.0 | M4 = 0.003 | |
| S4 = 1.0 | MM = 1.0 | |
| S5 = 1.0 | | |

For this example, it is assumed that the job or session accumulated the following amounts of the specified resources.

9135 milliseconds of CPU time on CPU 0 (CP0 = 9135)
0 millisecond of CPU time on CPU 1 (CP1 = 0.0)
28,880 units of mass storage (MS = 28880)
No magnetic tape or permanent file usage (MT = 0.0, and PF = 0.0)
No extended memory usage (EM = 0.0)
$10500_8$ central memory field length
No MAP usage (MP = 0.0)
No application usage (AUC = 0.0)

To solve for the CP parameter, the following formula is used.

CP = S0 x CP0 + S1 x CP1
= 1.0 x 9135 + 1.0 x 0.0
= 9135
so
CP = 9135 milliseonds

To solve for the IO parameter, the following formula is used.

```
IO = S2 x MS + S3 x MT + S4 x PF + S5 x OD
   = 1.0 x 28880 + 1.0 x 0.0 + 1.0 x 0.0 + 1.0 x 0.0
   = 28,880
     so
IO = 28,880 milliunits
```

To solve the for CM parameter, the following formula is used.

```
CM = (central memory field length + 777(8))/1000(8) (the 777(8) is used as a
       roundup factor)
   = (10500(8))/1000(8)
   = 11(8)
   = 9
     so
CM = 9 units
```

To solve for the EM parameter, the following formula is used.

```
EM = extended memory field length in tracks
   = 0
     so
EM = 0 units
```

To solve for the MP parameter, the following formula is used.

```
MP = MAP usage
   = 0
     so
MP = 0 milliunits
```

To solve for the AUC parameter, the following formula is used.

```
AUC = application usage
    = 0
      so
AUC = 0 milliunits
```

Since the AD parameter is specified in units and the remainder of the SRU equation is specified in milliunits, this part is computed first and converted into units. It can then be added to the AD parameter to obtain the number of SRUs.

```
M1 [CP + M2 x I0 + M3 (CP + I0) CM + M4 (CP + I0) EM + MM x MP + AUC]
    = 1.0[9135 + 0.100 x 28880 + 0.003(9135 + 28880)9 + 0 + 1 x 0 + 0]
    = 9135 + 2888 + 1026.405 + 0
    = 13049.405
    = 13049 milliunits
    = 13.049 units
      so
SRU = 13.049 + AD
    = 13.049 + 1.0
    = 14.049 units
```

So, during this job or session, 14.049 SRUs were accumulated.

## MULTIPLIER INDEX VALUES AND ACTUAL MULTIPLIER VALUES

When you assign charge numbers, you can specify certain multipliers (M1 through M4) and the adder (AD) in the SRU multiplier formula as other than the system default values. (Refer to the IO Increments section for a description of system default values.) In fact, you may assign to each charge number a unique set of multiplier and adder values. You do this by using the PROFILE command and the M1 through M4 directives (refer to PROFILE Console Input). Specify an index from 0 to $77_8$ with each directive. This is then converted to the actual multiplier or adder value. The actual multiplier or adder value must lie within the absolute range defined by the system for that parameter. However, you can also specify for each multiplier or adder a subrange in which all multipliers or adders must lie. Do this by specifying upper and lower bounds for these parameters. The released values for these upper and lower bounds are contained in COMSSRU. The following lists the COMSSRU names and gives the released values.

| COMSSRU Name | Released Value | Description |
|---|---|---|
| M1SL | 0.5 | M1 lower bound |
| M1SU | 1.5 | M1 upper bound |
| M2SL | 0.050 | M2 lower bound |
| M2SU | 0.150 | M2 upper bound |
| M3SL | 0.001 | M3 lower bound |
| M3SU | 0.064 | M3 upper bound |
| M4SL | 0.001 | M4 lower bound |
| M4SU | 0.064 | M4 upper bound |
| MASL | 1 | Adder (AD) lower bound |
| MASU | 64 | Adder (AD) upper bound |

When you specify an index value for M1, M2, M3, M4, or AD under PROFILE, the value is converted to the actual multiplier (or adder) value by the following formula:

MI = I(MISU - MISL)/64 + MISL

| Parameter | Description |
|---|---|
| MI | Actual multiplier (or adder) obtained |
| I | Multiplier (or adder) index value entered with a PROFILE directive |
| MISU | Multiplier (or adder) upper bound |
| MISL | Multiplier (or adder) lower bound |

Two exceptions are these:

- If you enter the index value 0 in the PROFILE directive, an actual multiplier (or adder) value of 0 will be assigned.
- If you enter either the upper index value $77_8$ or no index value in the PROFILE directive, the system default multiplier (or adder) will be assigned.

The PROFILa K display (refer to figure 3-14) shows the actual multiplier (or adder) value MI and the index value I.

The following example illustrates a conversion of an index value to an actual multiplier.

Example 1:

Assume that the released upper and lower bounds for M2 are used; that is,

```
M2SL = .050
M2SU = .150
```

You specify a PROFILE directive

```
M2 = 32
```

for a particular charge number. This implies that the index value I in the formula

```
MI = I(MISU - MISL)/64 + MISL
```

is equal to 32.

Upon substitution,

```
M2 = 32(.150 - .050)/64 + .050
   = 3.200/64 + .050
   = .050 + .050
   = .10
```

Thus, the actual M2 multiplier for this charge number is .10.

After you have chosen upper and lower bounds for your multipliers (and adder), you may want to assign different actual multiplier values to certain charge numbers. To choose the proper index value to be specified on the PROFILE directives, use the following formula. (This is merely the previous formula solved for I.)

```
I = 64(MI - MISL)/(MISU - MISL)
```

I, MI, MISL, and MISU are the same as those defined previously.

Example 2:

Assume that the released upper and lower bounds for M2 are used; that is,

```
M2SL = .050
M2SU = .150
```

and you wish to assign an actual M2 multiplier value of .10 to a particular charge number. To determine the appropriate index value for the PROFILE directive, use the following formula.

```
I = 64 (MI - MISL)/(MISU - MISL)
```

MI = .10 in this case.

Upon substitution,

```
I  = 64(.100 - .050)/(.150 - .050)
   = 64(.050)/(.100)
   = 64 x .5
   = 32
```

Thus, you should enter the PROFILE directive M2 = 32 for the particular charge number to specify an actual M2 multiplier value of .10.

## SCREEN MANAGEMENT FACILITY (SMF) AND FULL SCREEN EDITOR (FSE)

When the SMF subsystem is called by the operator, it performs some of the text editing functions on behalf of the user-callable editor FSE. Since SMF uses resources that would otherwise be used by FSE and be charged to the user, SMF and FSE use the application unit charge to simulate comparable resource accounting.

FSE calculates the application unit charge, using accumulators provided by SMF for mass storage operations, mass storage data transfer, and terminal output data transfer. The two mass storage accumulators provide a close approximation of the mass storage resource that actually would have been used by FSE if SMF had not been available. The terminal output accumulator is used to estimate the CP time used by SMF on behalf of each user, assuming a close correlation between output formatting and central processor overhead. The following parameter in COMSSRU provides the proportion of terminal output to CP resources.

| COMSSRU Name | Default Value | Description |
|---|---|---|
| IFCO | 0.100 | Full Screen Editor CP resource expressed as milliseconds per word of terminal output |

FSE converts the SMF accumulators into estimated central processor and mass storage resources, using the following calculations:

CP = (output words transmitted) x IFCO

MS = (operations x IMRD) + (PRUs transferred x $2^{IMRW}$)

Then the application unit charge is calculated using the SETAUC macro. Refer to NOS 2 Reference Set, Volume 4 for a description of the SETAUC macro.

# ACCOUNT DAYFILE MESSAGES 5

The account dayfile provides a history of system usage. (Appendix B shows the product or program that prompts a message in the account dayfile.) This history serves the following purposes:

- Provides information for billing users of the system.
- Provides information for analyzing system usage, for example, to determine the amount of magnetic tape used.

A standardized message format is provided to facilitate analysis of the account dayfile. All account dayfile messages have the following general format:

```
hh.mm.ss.  jsn s.  geac, additional information.
```

| Message | Description |
|---|---|
| hh.mm.ss. | Current time in the form of hour.minute.second. This field begins in column 2 and ends with a period. The system always places the field at the beginning of the message at the time it is entered into the account dayfile. |
| jsn | Job sequence name of the job that caused the message to be entered into the account dayfile. This field begins in column 13 and ends in column 16. The system places this field at the beginning of the message along with the time. |
| s | A single character in column 17 that describes the service class of the job. The system automatically adds this character when the message is entered into the account dayfile. The following service class types can be specified. |

| s | Service Class |
|---|---|
| A | Deadstart sequencing service class |
| B | Batch service class |
| C | Communication task service class |
| D | Detached interactive service class |
| M | Maintenance service class |
| N | Network supervisor service class |
| R | Remote batch service class |
| S | System service class |
| T | Interactive service class |
| X | Subsystem service class |
| 0 | Installation-defined service class 0 |
| 1 | Installation-defined service class 1 |
| 2 | Installation-defined service class 2 |
| 3 | Installation-defined service class 3 |

| Message | Description |
|---|---|
| geac | A unique 4-character message identifier that defines the particular activity identified. The field begins in column 21 and ends with a comma-blank (, ) or a period. The first character identifies the information group, the second character identifies the event that caused the message to be entered into the account dayfile, and the last two characters identify the activity being recorded. This field is further described later in this section. |
| additional information | Information that gives further detail to the activity identified by geac. The field begins in column 27 and ends with a period. This field is further described later in this section. |

These message lines are free format. That is, each field defined in a message ends in either a comma-space or, if it is the last field in the message, a period. If a field is not used, it appears only as a comma-space or, if it is the last field in the message, it does not appear at all. The separator immediately follows the last character of the field. The field size can be any length, depending on the information being supplied.

Example:

```
SPAT, filename, , packname.
```

No alternate user access was specified during the permanent file attach operation.

```
SPAT, filename.
```

No pack name was required and no alternate user access was specified during the permanent file attach operation.

All account dayfile entries are grouped by a particular information type. The first character of the geac field (that is, g of geac) in the account dayfile message identifies each group type. The following are the group types.

| Type | Description |
|---|---|
| Aeac | Accounting information |
| Seac | Statistical information |
| Ueac | Job usage information |
| Ieac | Installation information (reserved) |
| Meac | Multilevel security information |

# ACCOUNTING INFORMATION

The A message group provides accounting information. The messages include information denoting the beginning and end of an accounting sequence, as well as all resources used. The message formats are as follows:

Aeac, additional information

The events (e of Aeac) are defined as follows:

| Character | Event Description |
|---|---|
| A | Accumulator data |
| B | Beginning of a job |
| C | Change in the accounting activity |
| D | Disk activity |
| E | End of a job |
| M | Magnetic tape activity |
| O | Optical disk activity |
| P | Permanent file activity |
| R | Recovery operation |
| S | Suspension of a job |
| U | Unable to update PROFILa |

The activity identifier (ac of Aeac) identifies recorded information and is event dependent.

The A activity message is the following.

AASR, srus

| Identifier | Description |
|---|---|
| AASR | Periodically indicates how many system resource units a job has used. (It does not affect the value of the SRU accumulator.) |

The following is a list of the B activity messages.

ABAA, appl, name 1, name 2.
ABAC, C1, username, familyname, appl.
ABAC, C2, snode, dnode.
ABAE, C1, username, familyname, appl.
ABAE, C2, snode, dnode.
ABAP, C1, username, familyname, terminalname.
ABAP, C2, application.
ABAR, appl, snode, dnode.
ABCN, chargenumber, projectnumber.
ABCN, SYSTEM, .
ABEA, appl, name 1, name 2.
ABER, C1, username, familyname, terminalname.
ABIC, chargenumber, projectnumber, terminalname.

```
ABLQ, C1, jsn, yymmdd, hhmmss, dc.
ABLQ, C2, xxxxxx.xxxKUNS, sc.
ABRE, appl.
ABSC, sc.
ABST, system title.
ABSV, system version.
ABSY, yy/mm/dd.
ABUN, username, familyname, terminalname.
```

| Identifier | Description |
|---|---|
| ABAA | Denotes the successful establishment of an application-to-application connection by application appl in this host to another application identified by name 1 and name 2 in the same or another host. |
| ABAC | Denotes the successful establishment of an application-to-application connection to application appl in this host by an application identified by user username and family familyname in the same or another host, using logical links snode and dnode. |
| ABAE | Denotes an unsuccessful attempt to establish an application-to-application connection to application appl under user username and family familyname in this host, using logical links snode and dnode. |
| ABAP | Denotes the transfer of terminal terminalname, logged in under user username in the specified family, to application after validation by NVF. |
| ABAR | Denotes an invalid attempt to establish an application-to-application connection to application appl in this host, using logical links snode and dnode. |
| ABCN | Denotes the beginning of a charge sequence<br><br>chargenumber One-to 10-character alphanumeric change number<br><br>projectnumber One- to 20-character alphanumeric project number<br><br>The message is ussed when a CHARGE command is executed or at the start of printing a print file. It is also issued at the beginning of a job if the user name requires a CHARGE command and the default charge number is validated implicitly.<br><br>The second form is issued during unit record accounting if no project number is in effect when the file is queued.<br><br>On dual state systems, if a file is printed on the NOS side but the print request originates on the NOS/VE side, NOS uses the same charge and project numbers as NOS/VE. |
| ABEA | Denotes an unsuccessful attempt to establish an application-to-application connection by application appl in this host to another application, identified by name 1 and name 2 in the same or another host. |
| ABER | Denotes an incorrect login attempt at terminal terminalname under user username in family familyname. |

| Identifier | Description |
|---|---|
| ABIC | Denotes the value of default charge and project numbers associated with a user name. The project number is optional. The message is issued without a terminal name when the first USER command is executed by a batch job. It is issued with a terminal name at login for an interactive job. |
| ABLQ | Denotes a file with job sequence name jsn placed in the input or output queue for the first time on date yymmdd and time hhmmss. The file has a disposition code of dc and a service class of sc. Refer to the ROUTE command in the NOS Version 2 Reference Set, Volume 3, for a description of disposition codes and service class codes that may appear in this message. If subsequent ARRQ or AEPQ messages are issued for this file, their jsn will correspond to the jsn for this message, even if the file's job sequence name in the system changed. The file length is specified in PRUs. |
| ABRE | Denotes that application appl has reached the allowed maximum number of unsuccessful attempts to establish an application-to-application connection. |
| ABSC | Denotes the initial service class of a job. |
| ABST | Denotes the beginning of an account file from the system with the indicated system title. |
| ABSV | Denotes the beginning of an account file from the system with the indicated system version. |
| ABSY | Denotes the beginning of a new account dayfile through initialization of dayfiles or dayfile termination on date yy/mm/dd. Two blanks separate yy from the comma that precedes it. |
| ABUN | Denotes the beginning of a job or terminal session under user username in the permanent file family familyname. The parameter terminalname is optional and, depending on the job's origin, assumes the following values: |

| Job Origin | Value |
|---|---|
| Interactive | The terminal name. |
| Remote batch jobs submitted through RBF | The terminal name of the console of the remote batch terminal at which the job is read. |
| Batch jobs submitted through a card reader at the central site | The EST ordinal of the card reader through which the job is read. |
| Other | The parameter is blank. |

The following is a list of the C activity messages.

```
ACAS aname.
ACAB.
ACAE.
ACAF.
ACAI.
ACAR.
ACAU.
ACCN, chargenumber, projectnumber.
ACDT, DS, DATE. yy/mm/dd.
ACDT, DS, TIME. hh.mm.ss.
ACLK, jsn, pid, lid, ERR.
ACSC, sc, newjsn, sruunits.
ACSO, sruunits.
ACSR, sruunits.
ACUN, username,familyname.
```

| Identifier | Description |
|---|---|
| ACAS | Denotes an application switch to the secondary application aname. |
| ACAB | Denotes that the connection was aborted by the secondary application. |
| ACAE | Denotes an application return due to a system error. |
| ACAF | Denotes a connection return due to failure or NETOFF of the secondary application. |
| ACAI | Indicates an incorrect application switch. The user either is not validated for the secondary application or has specified an application that does not exist. |
| ACAR | Denotes a normal return from a secondary application. |
| ACAU | Denotes that the secondary connection was unavailable, refused the connection, or was unable to receive the connection because of a connection limit. |
| ACCN | Denotes a change of charge with charge chargenumber and project projectnumber. |
| ACDT | Denotes a new date or time entered into the system. |
| ACLK | Denotes remote host usage. |

| Parameter | Description |
|---|---|
| jsn | Job sequence name of the job on the remote host for which the accounting entry is made. |
| pid | Physical identifier of the remote host. |
| lid | Logical identifier of the mainframe that initiated the link. |
| ERR | Error. If present, the output file was discarded because user limits were reached. |

| Identifier | Description |
|---|---|
| ACSC | Denotes that service class has changed to sc or job sequence name has changed to newjsn. sruunits is the SRU accumulation at the time of the service class change. |
| ACSO | Denotes the overflow of SRU accumulation in SRU units. |
| ACSR | Denotes the end of an accounting block that uses sruunits of SRUs. The SRU accumulator is displayed and cleared and is associated with the entering of a new charge and project number. |
| ACUN | Denotes the change to user username under the permanent file family familyname. |

The following is a list of the D activity messages.

```
ADDI, est, familyname, dn.
ADDR, est, familyname, dn, lowelevel, upperlevel.
ADDU, est, familyname, dn.
ADPD, est, packname, username.
ADPI, est, packname, username.
ADPM, est, packname, username, lowerlevel, upperlevel.
```

| Identifier | Description |
|---|---|
| ADDI | Denotes an initialization operation on a permanent file device with EST ordinal est, family familyname, and device number dn. |
| ADDR | Denotes a recovery operation on a permanent file device with EST ordinal est, family familyname, and device number dn. The device has access level limits lowerlevel and upperlevel. |
| ADDU | Denotes an unloading operation on a permanent file device with EST ordinal est, family familyname, and device number dn. |
| ADPD | Denotes a dismounting operation on an auxiliary removable disk pack with EST ordinal est, pack packname, and user username. |
| ADPI | Denotes an initialization operation on an auxiliary removable disk pack with EST ordinal est, pack packname, and user username. |
| ADPM | Denotes a mounting and recovery operation on an auxiliary removable disk pack with EST ordinal est, pack packname, and user username. The disk pack has access level limits lowerlevel and upperlevel. |

The following is a list of the E activity messages.

```
AEAA, C1, appl, name 1, name 2.
AEAA, C2, xxxxxxSECS.
AEAP, C1, username, familyname, terminalname.
AEAP, C2, application, xxxxxxSECS.
AEQP, C1, jsn, yymmdd, hhmmss, dc.
AEQP, C2, xxxxxx.xxxKUNS, sc.
AERR, ty.
AESR, sruunits.
AESY, yy/mm/dd.
AEUN, C1, username, familyname, terminalname.
AEUN, C2, xxxxxxSECS.
```

| Identifier | Description |
|---|---|
| AEAA | Denotes that an application-to-application connection between application appl and another application identified by name 1 and name 2 has ended after an elapsed time of xxxxxx seconds. |
| AEAP | Denotes the end of connection of terminal terminalname to the specified application. Elapsed time of connection (xxxxxx, in seconds) may not agree exactly with the interval between corresponding ABAP and AEAP messages, because calculation of elapsed time is independent of the system function that prefixes the time field to the account dayfile messages. |
| AEQP | Denotes that an active or inactive queued file created on date yymmdd at time hhmmss with original job sequence name jsn is released from the system. The file has a disposition code of dc and a service class of sc. The file length is specified in PRUs. |
| AERR | Denotes that the job was rerun after a deadstart (ty=DS), by the operator (ty=OP), or because of a hardware error (ty=HW). |
| AESR | Denotes the end of a job that used srunnits SRUs under the current charge number. If sruunits is blank, the message AESR, . follows the completion of a print of punch file. |
| AESY | Denotes the end of an active account file on date yy/mm/dd. Two blanks separate yy from the comma that precedes it. |
| AEUN | Denotes the end of a terminal session under user username in the permanent file family familyname from terminal terminalname after an elapsed time of xxxxxx seconds. |

The following is a list of the M activity messages.

AMAS, est, vsn.
AMRT, est, type.

| Identifier | Description |
|---|---|
| AMAS | Denotes that magnetic tape equipment est is assigned with a volume serial number vsn. If the tape is unlabeled, vsn is not used. Two blanks separate est from the comma that precedes it. |
| AMRT | Denotes magnetic tape equipment est returned from the user. type specifies the type of drive returned and is specified as 639, 66x or 67x. Two blanks separate est from the comma that precedes it. |

The following is a list of the P activity messages.

APPN.
APPN, packname.

| Identifier | Description |
|---|---|
| APPN | Denotes the entering of the default pack name. If no pack name is specified, the message denotes the clearing of the default pack name. |

The following is a list of the R activity messages.

```
ARRQ, C1, jsn, yymmdd, hhmmss, dc.
ARRQ, C2, xxxxxx.xxxKUNS, sc.
ARSY, ln, yy/mm/dd.
ARUN, username, familyname, terminalname.
```

| Identifier | Description |
|---|---|
| ARRQ | Denotes that a file created on date yymmdd at time hhmmss with original job sequence name jsn is reentered in the active queue. The file has a disposition code of dc and a service class of sc. The file length is specified in PRUs. |
| ARSY | Denotes the recovery of the account dayfile at recovery level ln on the date yy/mm/dd. |
| ARUN | Denotes the recovery of an interactive job with user username and family familyname. terminalname is optional. If present, message represents NAM login at terminal terminalname. |

The following is the S activity message.

```
ASTx, username, familyname.
```

| Identifier | Description |
|---|---|
| ASTx | Denotes that the user's job is suspended: |

| x | Description |
|---|---|
| D | The suspension is caused by a user detachment. |
| H | The suspension is caused by a line disconnection. |
| P | The suspension is caused by a program-initiated detachment. |
| R | The suspension is caused by recovery of the interactive subsystem. |
| T | The suspension is caused by a session timeout. |
| U | The suspension is caused by a program-initiated detachment and logout. |

The following is the U activity message.

```
AUSR, sruunits.
```

| Identifier | Description |
|---|---|
| AUSR | Denotes that sruunits of SRUs cannot be recorded in PROFILa at overflow or end of account block. |

## MULTILEVEL SECURITY INFORMATION

The M message group provides information relating to multilevel security activities. The message formats are as follows:

Meac, additional information.

The events (e of Meac) or aspects of security affected are defined as follows:

| Character | Security Activity |
|---|---|
| F | Local file |
| J | Job access level |
| P | Permanent file |
| S | System operation |
| U | User operation |
| V | Validation operation |

The activity identifier (ac of Meac) identifies recorded information and is event dependent.

The following is the F activity message.

MFFI, filename, newlevel.

| Identifier | Description |
|---|---|
| MFFI | Denotes an invalid attempt to change the access level of local file filename to newlevel. |

The following is the J activity message.

MJJI, oldlevel, newlevel.

| Identifier | Description |
|---|---|
| MJJI | Denotes an invalid attempt to change the job access level from oldlevel to newlevel. |

The following is the P activity message.

MPNF, filename, username, packname.

| Identifier | Description |
|---|---|
| MPNF | Indicates that the user has attempted to access file filename belonging to alternate user username on pack packname and has been denied access (file-not-found error). |

The following is a list of the S activity messages.

MSEQ, est, lowerlevel, upperlevel.
MSOT, ot, lowerlevel, upperlevel.
MSSA, username.
MSSI, username.
MSLK.
MSUL.

| Identifier | Description |
|---|---|
| MSEQ | Indicates that the operator has changed the access level limits for the unit record equipment with EST ordinal est. |
| MSOT | Indicates that the operator has changed the access level limits for origin type ot. |
| MSSA | Indicates that security unlock status has been set at the console with user username. |
| MSSI | Denotes an invalid attempt to set security unlock status at the console with user username. |
| MSLK | Indicates that lock status has been set at the console. |
| MSUL | Indicates that unlock status has been set at the console. |

The following is a list of the U activity messages.

MUPW.
MUPX.

| Identifier | Description |
|---|---|
| MUPW | Indicates the user changed the user password. |
| MUPX | Indicates the user changed the user password expiration date. |

The following is a list of the V activity messages.

MVCU, ifamily, iusernm, mfamily, musernm.
MVDU, ifamily, iusernm, mfamily, musernm.
MVUU, ifamily, iusernm, mfamily, musernm.

| Identifier | Description |
|---|---|
| MVCU | Indicates a user name is created in a family's validation file. |
| MVDU | Indicates a user name is deleted in a family's validation file. |
| MVUU | Indicates a user name is updated in a family's validation file. |

| Field | Description |
|---|---|
| ifamily | One- to seven-character family name of the user who issued the command to change the validation file. |
| iusernm | One- to seven-character user name of the user who issued the command to change the validation file. |
| mfamily | One- to seven-character family name of the validation file being modified. |

| Identifier | Description |
|---|---|

| Field | Description |
|---|---|
| musernm | One- to seven-character user name being created, updated, or deleted from the validation file. |

# STATISTICAL INFORMATION

The S message group provides information relating to the various activities of the system. The message formats are as follows:

Seac, additional information.

The events (e character of Seac) are defined as follows:

| Character | Event Description |
|---|---|
| A | Subsystem abort |
| B | Subsystem initiated (begin) |
| C | Accumulator displayed and cleared |
| D | TMS database recovery messages |
| E | Subsystem terminated (end) |
| I | Informative message |
| M | MSE staging or destaging request |
| O | Optical disk messages |
| P | Permanent file information |
| R | Subsystem recovery |
| T | Tape Alternate Storage staging requests |

The following is the A activity message.

SANW, application, jsn.

| Identifier | Description |
|---|---|
| SANW | Denotes application failure during a job with job sequence name jsn. |

The following is a list of the B activity messages.

SBER, application, jsn.
SBNW, application, jsn.
SBSB, subsystem.

| Identifier | Description |
|---|---|
| SBER | Denotes invalid NETON attempt by application during a job with job sequence name jsn. |

| Identifier | Description |
|---|---|
| SBNW | Denotes successful NETON by application during a job with job sequence name jsn. |
| SBSB | Denotes subsystem initiated. |

The following is a list of the C activity messages.

```
SCAP, C1, source_service.
SCAP, C2, destination_service.
SCAP, C3, di_name_or_address.
SCAP, C4, mmm,prt,vvvv.
SCAP, C5, ttttttrrrrrrssssss.
SCAP, C6, cccccc.
SCAP, C7, connect_time.
SCLI, node, C1, port, ttttttllllll.
SCLI, node, C2, sssssscccccc.
SCLI, node, C3, bbbbbbpppppppaaaaaa.
SCMT, est, pppppppp, t.
SCNQ, node, C1, ccccccdddddd111111.
SCNQ, node, C2, gggggggrrrrrrssssss.
SCNQ, node, C3, ppppppiiiiiinnnnnn.
SCNQ, node, C4, wwwwww.
SCTE, C1, device_name.
SCTE, C2, device_type.
SCTE, C3, destination_service.
SCTE, C4, di_name_or_address.
SCTE, C5, lim,prt,vvvv.
SCTE, C6, ttttttrrrrrrssssss.
SCTE, C7, cccccc.
SCTE, C8, connect_time.
SCTU, node, C1, port, ttttttllllll.
SCTU, node, C2, sssssscccccc.
SCTU, node, C3, bbbbbb.
```

| Identifier | Description |
|---|---|
| SCAP | Denotes the number of blocks and characters transmitted and received for the application-to-application connection terminating at the specified device interface, beginning with the source service and ending at the destination service. All values are in decimal. |

| Field | Description |
|---|---|
| mmm | Line Interface Module (LIM) or Mainframe Channel Interface |
| prt | Port number on the LIM |
| vvvv | X.25 virtual circuit number |
| tttttt | Blocks/packets transferred |
| rrrrrr | Blocks/packets received |
| ssssss | Characters transferred |
| cccccc | Characters received |

| | |
|---|---|
| SCLI | Denotes the number of blocks and characters transmitted and received and the number of X.25 connections rejected on the line connected to the indicated port of the NPU with node number node. The port number is hexadecimal; all other values are decimal. |

| Identifier | Description |
|---|---|

| Field | Description |
|---|---|
| tttttt | Number of blocks transmitted |
| llllll | Number of blocks received |
| ssssss | Number of characters transmitted/32 |
| cccccc | Number of characters received/32 |
| bbbbbb | Number of bad blocks retransmitted |
| pppppp | Number of X.25 PAD connections rejected due to too few enable circuits |
| aaaaaa | Number of X.25 application-to-application connections rejected due to too few enable circuits |

SCMT — Denotes the number of magnetic tape PRUs transferred to or from unit est; t denotes whether the blocks were read (t=R) or written (t=W). Two blanks separate est from the comma that precedes it.

| Field | Description |
|---|---|
| pppppppp | Number of PRUs |

SCNQ — Indicates various statistics about the NPU with node number node. All values are decimal.

| Field | Description |
|---|---|
| cccccc | Percentage of CPU used in tenths of a percent |
| dddddd | Average number of data buffers |
| llllll | Lowest regulation level reached |
| gggggg | Number of inputs rejected due to NPU regulation |
| rrrrrr | Average number of characters per second received from the host |
| ssssss | Average number of characters per second sent to the host |
| pppppp | Number of active batch output devices |
| iiiiii | Number of active batch input devices |
| nnnnnn | Number of interactive connections |
| wwwwww | Average number of worklists processed per second |

SCTE — Denotes the number of blocks and characters transmitted and/or received for the device connected to the indicated port. The device interface name is the one in which the connection terminates. All values are in decimal.

| Field | Description |
|---|---|
| lim | Line Interface Module (LIM) |
| prt | Port number on the LIM |
| vvvv | X.25 virtual circuit number |
| tttttt | Blocks/packets transferred |
| rrrrrr | Blocks/packets received |
| ssssss | Characters transferred |
| cccccc | Characters received |

| Identifier | Description |
|---|---|
| SCTU | Denotes the number of blocks and characters transmitted and received on the line connected to the indicated port of the NPU with node number node. The port number is hexadecimal. All other values are decimal. |

| Field | Description |
|---|---|
| tttttt | Number of blocks transmitted |
| llllll | Number of blocks received |
| ssssss | Number of characters transmitted/32 |
| cccccc | Number of characters received/32 |
| bbbbbb | Number of bad blocks retransmitted |

The following is a list of the D activity messages. For more information on these messages, refer to Appendix B of the NOS Version 2 Tape Management System Site Operations manual.

```
SDAU, family/usernam/seqno/fvsn, vsn.
SDCR, family/usernam/seqno/fvsn, yy/mm/dd.
SDCR, family/usernam/seqno/fvsn, .
SDCR, family/usernam/seqno/fvsn.
SDAD, family, vsn, prn, ssssss.
SDRM, family, vsn.
SDRV, family, vsn, prn, ssssss.
SDAM, family, usernam, fvsn, ssssss.
SDRA, family/usernam/seqno/vsn, tfd/passwor.
SDRA, family/usernam/seqno/vsn, tfd.
SDRB, familywlogical-file-indentxphysical-file-idt.
SDRC, family/controlwrdy/chrgnumber,mulsidz.
```

| Identifier | Description |
|---|---|
| SDAU | Denotes the VSN assignment to a user's tape file. |
| SDCR | In the order listed above: the tape file is conditionally released, the conditional release date is cleared from the tape file, or the tape file is unconditionally released. |
| SDAD | Denotes the VSN added to a tape catalog file. |
| SDRM | Denotes the VSN removed from a tape catalog file. |
| SDRV | Denotes the VSN revised in a tape catalog. |
| SDAM | The tape file is amended. |
| SDRA | The tape file is reserved or amended, or it is reserved or amended and the password is null. |
| SDRB | The tape is reserved or amended. |
| SDRC | The tape file is reserved or amended. |

The following is a list of the E activity messages.

```
SEMC, xxxxxx.xxxKUNS.
SENW, application, jsn.
SESB, subsystem.
SESC, subsystem.
```

| Identifier | Description |
|---|---|
| SEMC | Denotes program disconnection from the message control system (MCS) and weighted number of calls to MCS. |
| SENW | Denotes NETOFF by application during job with job sequence name jsn. |
| SESB | Denotes subsystem termination in progress. |
| SESC | Denotes subsystem termination complete. |

The following is a list of the I activity messages.

SIAD.
SIDT, yy/mm/dd.
SIPI, personal identifier.
SISC, nn.
SISC.
SIUN, username.

| Identifier | Description |
|---|---|
| SIAD | Denotes the dumping of the account dayfile. |
| SIDT | Current date. Issued every hour on the hour. Two blanks separate yy from the comma that precedes it. |
| SIPI | Denotes a successful interactive login of a user validated with a nonzero personal identification. |
| SISC | Denotes the user security count decremented to the value nn. If issued with no parameter, it denotes that the user violated security, but the system is unable to decrement the user security count because VALIDUs is not currently available, or because the user has a security count of unlimited or zero. |
| SIUN | Denotes an attempt to enter a secondary user username when the secondary USER command feature is disabled or the username, password, or familyname is incorrect. |

The following is a list of the M activity messages.

SMBD, filename/userindex/familyname.
SMBS, filename/userindex/familyname.
SMED, filename/userindex/length/code.
SMES, filename/userindex/length/code.
SMLD, SM=sm, CSN=csn, ID=cm.
SMUL, SM=sm, CSN=csn, ID=cm.

| Identifier | Description |
|---|---|
| SMBD | Denotes MSE beginning of destaging operation for file filename, user index userindex, and family familyname. |
| SMBS | Denotes MSE beginning of staging operation for file filename, user index userindex, and familyname. |
| SMED | Denotes MSE end of destaging operation for file filename and user index userindex. The file length is specified in PRUs. The following return codes are valid. |

| Identifier | Description |
|---|---|

| Code | Description |
|---|---|
| 0 | No errors. |
| 1 | No space available. |
| 2 | No storage module available. |
| 3 | No cartridge or group available. |
| 4 | File has a different alternate storage address (asa) |
| 5 | Permanent file error or destage abandoned. |
| 6 | Catalog access error. |
| 7 | Cartridge overflow not permitted. |
| 10 | Group full. |
| 11 | Disk read error. |
| 12 | Cartridge lost. |
| 13 | SSEXEC closed to destage. |

SMES — Denotes MSE end of staging operation for file filename and user index userindex. The file length is specified in PRUs. The following return codes are valid.

| Code | Description |
|---|---|
| 0 | No error. |
| 1 | No errors, but the alternate storage address (asa) is cleared. |
| 2 | Temporary cartridge busy. |
| 3 | SETAF failed. |
| 4 | SETDA or UREPLAC failed. |
| 5 | Permanent file data error. |
| 6 | Permanent file linkage error. |
| 7 | AU out of range. |
| 10 | PFC entry obsolete. |
| 11 | File length error. |
| 12 | PP detected data problem. |
| 13 | Obsolete catalog. |
| 14 | Disk full. |
| 15 | Disk write error. |
| 16 | Cartridge lost. |
| 17 | Storage module off. |
| 20 | Unknown hardware problem. |
| 21 | 7990 catalog not online. |
| 22 | 7990 catalog input or output error. |
| 23 | Access level unavailable. |

SMLD — Denotes an MSE cartridge load request. The cartridge is identified by storage module sm, cartridge serial number csn, and cartridge manufacturer cm.

SMUL — Denotes an MSE cartridge unload request. The cartridge is identified by storage module sm, cartridge serial number csn, and cartridge manufacturer cm.

The following is a list of the O activity messages.

```
SOAS, filename, userindex, familypack, vsn, version, retries.
SOBF, lfn, recorded_filename, version.
SOBS, filename, userindex, familypack, vsn, version, retries.
SOBV, est, vsn.
SODF, C1, lfn, recorded_filename, version.
SODF, C2, prus_transferred, access, retries.
SOEF, C1, lfn, recorded_filename, version.
SOEF, C2, prus_transferred, access, retries.
SOES, filename, userindex, familypack, vsn, version, retries.
SOEV, est, vsn.
SORF, C1, recorded_filename, version, access, unterminated_file.
SORF, C2, partition, vsn, parallel_volumes, prus.
SORS, filename, userindex, familypack.
SOVA, vsn, familypack, requests.
```

| Identifier | Description |
|---|---|
| SOAS | Denotes abandonment of an optical stage request. |
| SOBF | Denotes open of optical disk file for data transfer. |
| SOBS | Denotes optical stage request received by MAGNET. |
| SOBV | Denotes mount of optical disk volume. |
| SODF | Denotes data transferred to/from an optical disk file. |
| SOEF | Denotes data transferred and return of an optical disk file. |
| SOES | Denotes optical stage request successfully completed. |
| SOEV | Denotes dismount of optical disk volume. |
| SORF | Denotes assignment of requested optical disk file to a job. |
| SORS | Denotes optical stage request made by PFM. |
| SOVA | Denotes assignment of an optical staging volume. |

The following is a list of the P activity messages.

```
SPAC, filename, username, packname.
SPAL, filename, username, packname.
SPAP, filename, username, packname.
SPAS, filename, username, packname.
SPAT, filename, username, packname.
SPCG, filename, username, packname.
SPCT, filename, username, packname.
SPDD, filename, username, packname.
SPDF, filename, username, packname.
SPDI, filename, username, packname.
SPDP, filename, username, packname.
SPGT, filename, username, packname.
SPPG, filename, username, packname.
SPPM, filename, username, packname.
SPRP, filename, username, packname.
SPRS, filename, username, packname.
SPSA, filename, username, packname.
SPSD, filename, username, packname.
SPSF, filename, username, packname.
SPSP, filename, username, packname.
SPSV, filename, username, packname.
SPUA, filename, username, packname.
SPUG, filename, username, packname.
SPUR, filename, username, packname.
```

| Identifier | Description |
|---|---|
| SPAC | Denotes permanent file SETPFAC operation. |
| SPAL | Denotes permanent file SETPFAL operation. |
| SPAP | Denotes permanent file APPEND operation. |
| SPAS | Denotes permanent file ASSIGNPF operation. |
| SPAT | Denotes permanent file ATTACH operation. |
| SPCG | Denotes permanent file CHANGE operation. |
| SPCT | Denotes permanent file CATLIST operation. |
| SPDD | Denotes permanent file DROPDS operation. |
| SPDF | Denotes permanent file DEFINE operation. |
| SPDI | Denotes permanent file DROPIDS operation. |
| SPDP | Denotes permanent file DELPFC operation. |
| SPGT | Denotes permanent file GET or OLD operation. |

| Identifier | Description |
|---|---|
| SPPG | Denotes permanent file PURGE operation. |
| SPPM | Denotes permanent file PERMIT operation. |
| SPRP | Denotes permanent file REPLACE operation. |
| SPRS | Denotes permanent file RPFSTAT operation. |
| SPSA | Denotes permanent file SETASA operation. |
| SPSD | Denotes permanent file SETDA operation. |
| SPSF | Denotes permanent file SETAF operation. |
| SPSP | Denotes permanent file STAGEPF operation. |
| SPSV | Denotes permanent file SAVE operation. |
| SPUA | Denotes permanent file UATTACH operation. |
| SPUG | Denotes permanent file UGET operation. |
| SPUR | Denotes permanent file UREPLACE operation. |

The following is a list of the T activity messages.

STAS, filename, userindex, familypack, vsn, retries.
STBS, filename, userindex, familypack, vsn, retries.
STES, filename, userindex, familypack, vsn, retries.
STRS, filename, userindex, familypack.
STTA, vsn, familypack, requests.

| Identifier | Description |
|---|---|
| STAS | Denotes optical stage request abandoned. |
| STBS | Denotes tape stage request received by MAGNET. |
| STES | Denotes tape stage request successfully completed by PFRES. |
| STRS | Denotes tape stage request issued by PFM. |
| STTA | Denotes assignment of a staging tape. |

The following is a list of the R activity messages.

SRSC, subsystem.
SRSA, subsystem.

| Identifier | Description |
|---|---|
| SRSC | Denotes subsystem recovery complete. |
| SRSA | Denotes subsystem recovery aborted. |

## USAGE INFORMATION

The U message group provides a breakdown of system usage for a particular user. Several accumulators are maintained for this purpose. Each accumulator is displayed and cleared when it overflows. The user must add all such occurrences to get the total usage. The message formats are as follows:

Ueac, usage count descriptor.

The events (e of Ueac) are defined as follows:

| Character | Event Description |
|---|---|
| B | Accumulator begun |
| C | Accumulator displayed and cleared |
| D | Accumulator displayed and continued |
| E | Accumulator displayed and ended |

The activities (ac characters of Ueac) are defined as follows:

| Character | Activity Description |
|---|---|
| AC | Application unit charge |
| AD | SRU adder accumulator |
| AU | Application program accumulator |
| CI | Characters transmitted into the system |
| CO | Characters transmitted out of the system |
| CP | CPU time |

| Character | Activity Description |
|---|---|
| CR | Cards read |
| CT | Characters transmitted into or out of the system |
| LP | Lines printed |
| LS | Link size (size of file in PRUs transmitted between mainframes) |
| LV | Lines printed, V carriage control encountered |
| MP | Matrix array processor III (MAP III) activity accumulator |
| MS | Mass storage activity |
| MT | Magnetic tape activity |
| OD | Optical disk activity |
| PC | Cards punched |
| PF | Permanent file activity |
| PL | Plotter activity |

Each accumulator has a numerical value followed by a 4-character unit descriptor. The following are the descriptors.

| Descriptor | Value |
|---|---|
| KCHS | Kilocharacters |
| KCDS | Kilocards |
| KLNS | Kilolines |
| KPLS | Kiloplotunits |
| KUNS | Kilounits |
| SECS | Seconds |
| UNTS | Units |

The following is a B activity message.

UBAU, xxxx.

| Identifier | Description |
|---|---|
| UBAU | Denotes the beginning of the application program accumulator for application xxxx. |

Certain C event activity messages contain fields mi and eqn, identifying the equipment on which the particular activity took place. The mi characters are the machine identifier (MID entry in CMRDECK; refer to NOS 2 Analysis Handbook). The eqn characters are either the EST ordinal or terminal name of the device that performed the activity.

The following is a list of all C activity messages.

```
UCAC, xxxxxx.xxxUNTS.
UCAD, xxxxxx.xxxKUNS.
UCCI, xxxxxx.xxxKCHS.
UCCO, xxxxxx.xxxKCHS.
UCCR, mi, eqn, xxxxxx.xxxKCDS.
UCCT, xxxxxx.xxxKCHS.
UCLP, mi, eqn, xxxxxx.xxxKLNS.
UCLS, ty, xxxxxx.xxxKUNS.
UCLV, ni, eqn, xxxxxx.xxxKLNS.
UCMP, xxxxxx.xxxKUNS.
UCMS, xxxxxx.xxxKUNS.
UCMT, xxxxxx.xxxKUNS.
UCOD, xxxxxx.xxxKUNS.
UCPC, mi, eqn, xxxxxx.xxxKCDS.
UCPF, xxxxxx.xxxKUNS.
UCPL, mi, eqn, xxxxxx.xxxKPLS.
```

| Identifier | Description |
|---|---|
| UCAC | Denotes the value of the AUC accumulator for a job when the accumulator overflowed. |
| UCAD | Denotes the value of the SRU adder accumulator for a job when the accumulator overflowed. |
| UCCI | Denotes the number of characters transferred into the system for a job (for interactive subsystem). |
| UCCO | Denotes the number of characters transferred out of the system for a job (for interactive subsystem). |
| UCCR | Denotes the number of cards read into the system for a job on equipment mi, eqn (described previously). |
| UCCT | Denotes the value of the terminal input and output counter when the counter overflowed. |
| UCLP | Denotes the number of lines printed for a job on equipment mi, eqn (described previously). |
| UCLS | Denotes the amount of data sent or received over the network. The file length is specified in PRUs for file type ty. |

| ty | Description |
|---|---|
| IN | Input file |
| PF | Permanent file |
| PR | Print file |
| PU | Punch file |

| | |
|---|---|
| UCLV | Denotes the number of lines printed for a job in which the V carriage control character was used on equipment mi, eqn (described previously). |
| UCMP | Denotes the value of the MAP III activity accumulator for a job when the accumulator overflowed. |
| UCMS | Denotes the value of the mass storage activity accumulator for a job when the accumulator overflowed. |

| Identifier | Description |
|---|---|
| UCMT | Denotes the value of the magnetic tape activity accumulator for a job when the accumulator overflowed. |
| UCOD | Denotes the value of the optical disk activity accumulator for a job when the accumulator overflowed. |
| UCPC | Denotes the number of cards punched for a job on equipment mi, eqn (described previously). |
| UCPF | Denotes the value of the permanent file activity accumulator for a job when the accumulator overflowed. |
| UCPL | Denotes the number of plot units plotted for a job on equipment mi, eqn (described previously). |

The following is a list of the D activity messages.

```
UDAC, xxxxxx.xxxUNTS.
UDAD, xxxxxx.xxxKUNS.
UDCI, xxxxxx.xxxKCHS.
UDCO, xxxxxx.xxxKCHS.
UDCP, xxxxxx.xxxSECS.
UDCT, xxxxxx.xxxKCHS.
UDMP, xxxxxx.xxxKUNS.
UDMS, xxxxxx.xxxKUNS.
UDMT, xxxxxx.xxxKUNS.
UDOD, xxxxxx.xxxKUNS.
UDPF, xxxxxx.xxxKUNS.
```

| Identifier | Description |
|---|---|
| UDAC | Denotes the AUC accumulator for a job. |
| UDAD | Denotes the SRU adder accumulator for a job. |
| UDCI | Denotes the number of characters transferred into the system for a job (currently available only for interactive jobs). |
| UDCO | Denotes the number of characters transferred out of the system for a job (currently available only for interactive jobs). |
| UDCP | Denotes the accumulated CPU time for a job. |
| UDCT | Denotes the accumulated input and output character count of a job. |
| UDMP | Denotes the MAP III activity accumulator for a job. |
| UDMS | Denotes the mass storage activity accumulator for a job. |
| UDMT | Denotes the magnetic tape activity accumulator for a job. |
| UDOD | Denotes the optical disk activity accumulator for a job. |
| UDPF | Denotes the permanent file activity accumulator for a job. |

The following is a list of the E activity messages.

```
UEAC, xxxxxx.xxxUNTS.
UEAD, xxxxxx.xxxKUNS.
UEAU, xxxxxx.xxxUNTS.
UECI, xxxxxx.xxxKCHS.
UECO, xxxxxx.xxxKCHS.
UECP, xxxxxx.xxxSECS.
UECT, xxxxxx.xxxKCHS.
UEMP, xxxxxx.xxxKUNS.
UEMS, xxxxxx.xxxKUNS.
UEMT, xxxxxx.xxxKUNS.
UEOD, xxxxxx.xxxKUNS.
UEPF, xxxxxx.xxxKUNS.
```

| Identifier | Description |
|---|---|
| UEAC | Denotes the AUC accumulator for a job. |
| UEAD | Denotes the SRU adder accumulator for a job. |
| UEAU | Denotes the application program accumulator for a job step. |
| UECI | Denotes the number of characters transferred into the system for a job (currently available only for interactive jobs). |
| UECO | Denotes the number of characters transferred out of the system for a job (currently available only for interactive jobs). |
| UECP | Denotes the CPU time for a job. |
| UECT | Denotes the terminal input and output activity accumulator for a job. |
| UEMP | Denotes the MAP III activity accumulator for a job. |
| UEMS | Denotes the mass storage activity accumulator for a job. |
| UEMT | Denotes the magnetic tape activity accumulator for a job. |
| UEOD | Denotes the optical disk activity accumulator for a job. |
| UEPF | Denotes the permanent file activity accumulator for a job. |

The following usage summary for a job is always issued.

```
UeCO, xxxxxx.xxxKCHS.      Interactive jobs only
UeCI, xxxxxx.xxxKCHS.      Interactive jobs only
UeAC, xxxxxx.xxxUNTS.
UeAD, xxxxxx.xxxKUNS.
UePF, xxxxxx.xxxKUNS.
UeMs, xxxxxx.xxxKUNS.
UeMT, xxxxxx.xxxKUNS.      Tape user only
UeOD, xxxxxx.xxxKUNS.      Optical disk users only
UeCP, xxxxxx.xxxSECS.
```

The character e is an event identifier described in this section.

# PROBLEM REPORTING 6

Your particular implementation of NOS and its product set (COBOL, FTN, NAM, and so on) may utilize the software in unanticipated ways, resulting in various system problems. This section explains how to resolve these problems. Control Data maintains an extensive data base containing reported software problems and solutions. You can access this information using an online utility called SOLVER.

SOLVER displays information from two logically different data bases. The programming system report (PSR) data base contains detailed descriptions of and resolutions for specific problems found during our testing or by our customers. The Installation Bulletins (IB) data base contains information for building and using systems. Installation bulletins are used by CYBER Software Support to notify sites of significant problems identified after a system is released. The IB data base should be reviewed periodically for bulletins that may affect the site. This information is updated regularly and is categorized according to the system release levels.

Control Data has a CYBER Software Support (CSS) organization that provides telephone consultation regarding NOS and its products. This service is useful for:

- Isolating the cause of a software failure
- Using and validating SOLVER
- Using software

## PROGRAMMING SYSTEM REPORT

Submitting a PSR is the official way to inform Control Data of any problem you have with our software. You can do this by generating the PSR online, using SOLVER. The SOLVER system prompts you for data while you fill out an online PSR. SOLVER contains extensive online help to guide you through a PSR writing session. Figure 6-1 summarizes the steps for submitting a PSR.

1. Describe the problem. Identify the following:

   a. The feature that failed
   b. Where the feature is documented
   c. The nature of the failure
   d. The seriousness of the consequences (priority)
   e. The frequency of the problem
   f. Whether there is a pattern
   g. Whether there is a solution
   h. Whether you have analyzed the problem or corrective code

2. Define the environment. Specify the following:

   a. NOS release level
   b. Product release level
   c. Your installation options
   d. Additional code (Control Data and local)
   e. Hardware problem at time of error
   f. Recent changes made to the hardware

3. Provide additional problem documentation such as memory dumps and listings.

Figure 6-1. Writing a PSR

## WHEN TO WRITE A PSR

Users write PSRs to document problems and have them corrected. Before you write a PSR, you should:

1. Verify that the problem really exists, and that you have enough information to locate the cause. Check the appropriate documentation to ensure that the product is installed properly and is designed to do what you have attempted.

2. Use SOLVER to find out if your problem is a known problem with a solution. Be sure to query both PSRs and IBs. If your problem has already been reported, log into the INTEREST IN OPEN PSR listing (instead of submitting another PSR).

3. If the problem is unknown to SOLVER, contact CSS.

### WRITING AN EFFECTIVE PSR

It is very important that you write a clear and descriptive problem statement in the PSR. This includes a concise statement describing the software failure (which feature of the software failed and the nature of the failure). Usually it is a good idea to provide references to the documentation, stating that your particular use of the software is both defined and permitted. If the manual is unclear or incomplete, be sure to mention it. For example, "Nowhere in the manual is this particular combination prohibited. Page 20 gives a similar example." The following is a good example of a problem description.

> "The system console screen goes blank after execution of the command QDSPLAY,jsn. This situation occurs only when the P display is occupying the left screen."

The impact of the problem is very important. Control Data personnel work on PSRs in order of priority. Your stating the consequences of the problem will help to define its importance to the person working on it. Relevant questions include the following: Is there a way to avoid the problem? Is the occurrence of the problem predictable? How often does the problem occur? How many people depend upon the feature that has failed? Is the system usable as a whole, in part, or not at all?

For example:

> "...This problem with SMFEX is not seen by users of FSEEX. But use of FSEEX severely impacts our system performance, due to the frequent movement of jobs by NOS to accommodate the 100 users who require the Full Screen Editor. The system is primarily being used for application code development."

The environment in which the problem occurs must be stated in the PSR. A software environment includes the release level of NOS, the release level of the product(s), and the installation options. Include in the PSR the descriptions of any additional Control Data code (idents) and local code (listings of) in the product or system part in question. It is most important to consider the hardware environment if there have been recent changes in the hardware or if the hardware seems to be functioning poorly or improperly (for example, memory parity errors or disk errors).

Problem documentation other than the description of the problem is almost always required. This should include all the information necessary for reproducing the problem, plus any listings, memory dumps, or the like that were generated at the time you experienced the problem. A failing test case is the most useful piece of support material for your PSR. If you have done any analysis of the problem, be sure to provide the details and a description of the original symptoms. Include any corrective code your analysis has produced. It is preferable to put the test cases, data files, locally generated code, and any suggested code on tape. Be sure to mark all the supporting materials clearly with your submitter reference number. This helps identify the problem and PSR with which they are associated.

## PSR SUPPORTING INFORMATION

Most of the support documentation that follows should be readily available to you, or it should have been generated at the time the problem occurred. This section describes the necessary support documentation for PSRs against NOS and its most commonly used products and subsystems.

Please contact CSS if you have questions about gathering the relevant support materials.

## NOS SYSTEM PROBLEMS

Problems occurring with NOS fall into two areas: those that affect the general operation of the system and those that affect the usability of the system. Examples of the first are system hangs and aborts. Hangs can be identified by the PP HUNG or HUNG PP messages displayed on the system console. Aborts are identified by a CPUMTR ERROR EXIT message. Support documentation for operational problems should include the following:

- An express deadstart dump (EDD) tape. If the problem occurs during deadstart, or PP MTR is suspected (for example, the clock is dead), save the contents of MTR by toggling the PP barrel switch before generating the EDD tape.
- SYSTEM/ACCOUNT/ERRLOG/MAINLOG dayfiles for at least the last hour preceding the problem
- Copy of your deadstart tape
- Listings of all PP and CPU routines that are locally modified and seem to be related to the problem
- A copy of the job and the data for that job if the system problem is associated with the execution of a particular job
- For permanent file problems, the relevant PFDUMP tape and PFCAT output

Usability problems are most often caused by improperly functioning commands. Support documentation for usability problems should include all the material necessary for reproducing the problem (procedures, files, and programs).

## NETWORK PROBLEMS

Network problems also fall into two areas: NAM/CCP, NAM/CDCNET, and network applications (RBF, IAF, TAF, and the like). If you are having problems with NAM/CDCNET, refer to the CDCNET Configuration and Site Administration Guide, which describes the steps to take to document your problem. The following documentation is required to analyze NAM/CCP problems.

- Relevant NPU dumps and the NPU link listing
- Field length dumps (if generated) and dayfiles for NAM, NS, CS, and NVF (network trace files for the corresponding time frame are very useful)
- MAINLOG/ERRLOG for the time frame specified in NAM's dayfile
- Listings of all local code in NAM, NS, CS, and NVF
- Listings of the UCCP and USERBPS files used to build CCP
- The NCF and LCF in effect when the problem occurred.

In general, analysis of a problem with one of the network applications requires both the field length dump of the application and the applications dayfile. The network trace file is also very useful. If usability problems with an application occur, all the documentation needed to enable reproduction of the problem must be included in the PSR.

Specifics concerning IAF and TAF:

IAF

- Sense switches 1 and 6 are set by default in the IAF procedure file. To obtain a field length dump of IAF for any abnormal conditions, set switch 3 also.
- If an interactive terminal hangs, set sense switch 4 (in addition to those above) before idling IAF in order to obtain a dump of IAF's field length. Specify in the PSR the JSN of the interactive job that was hung.
- Refer to a listing of any locally generated code in IAF.
- If a PP hangs due to an interactive job, leave IAF running at a control point when an express deadstart dump is taken.

TAF

- Refer to a listing of any locally generated code in TAF and its related decks.
- For terminal or network communication problems, perform a network trace.
- For data base related problems, obtain a copy of all xxJ files, data base files, and the source code for any relevant tasks associated with the problem.
- Obtain a copy of the task library for any LIBTASK problem.
- Include TAF's Initialization and Recovery Report and dayfile with any PSRs written against TAF.
- Include TAF's field length dump and matching listing for any hang or abort.

## COMMON PRODUCTS

Analysis of problems with any of the compilers or associated products (such as CRM, DDL, and the Loader) requires the following: the source program, the data needed for input (if applicable), a load map, a field length dump (if applicable), and the dayfile. Instructions for the proper execution of the program are essential. Programs using CDCS require the appropriate schema and subschema.

## REMOTE HOST FACILITY (RHF)

The supporting documentation for problems with RHF parallels that which is necessary for network problems. The list below summarizes this documentation.

- System dayfiles for both systems; RHF subsystem's dayfile and application's dayfile for both systems.
- An express deadstart dump for hang or inoperative conditions. (Any field length dumps of the RHF and its applications that are generated should be included with the PSR).
- Simultaneous dumps of both local and remote NADs for hang and inoperative conditions.
- Listings of the local modifications, load maps, and files involved in the problem.
- RCFGEN input/output (such as configuration files), HPA output, and copies of all trace files.
- LID configuration files for both systems.

# GLOSSARY A

Abort

To terminate a program, job, or job step when an error condition (hardware or software) exists from which the program or computer cannot recover.

Access Category

Refer to File Access Category and System Access Categories.

Access Code

A hardware/software security code assigned to each NAD on the network. A NAD may communicate only with other NADs having matching codes.

Access Level

A property of each file, job, and equipment on a secured system. It is used to indicate the sensitivity of information in the file or job, or the sensitivity of information that can be processed by the equipment. On a secured system, there are up to eight access levels corresponding to increasing levels of sensitivity. Authorization can be given for access to some or all of those levels. Refer also to File Access Level, Job Access Level, and System Access Levels.

Access Level Limits

Refer to Job Access Level Limits.

Account Dayfile

A dayfile that provides a history of system usage over the life of the account dayfile. It provides information necessary for accurate billing and system usage analysis.

AP

The application permission.

Application

Refer to Application Program.

Application Program

A program resident in a host computer that provides an information storage, retrieval, and/or processing service to a remote user via the data communication network and the Network Access Method. Application programs use the system control point feature of NOS to communicate with the Network Access Method.

In the context of network software, an application program is not an interactive job, but rather a terminal servicing facility that provides terminal users with a specific processing capability such as remote job entry from batch terminals, transaction processing, entry and execution of interactive jobs, and so forth. For example, the standard Control Data interactive facility IAF makes terminal input and output appear the same to an executing program as file input and output; IAF is a network application program, but the executing program using IAF is an interactive job.

ASCII

American National Standard Code for Information Interchange. The standard character set and code used for information interchange between systems. It is a 7-bit code representing a prescribed set of 128 characters.

Attach

The process of making a direct access permanent file accessible to a job by specifying the proper permanent file identification and passwords.

Auxiliary Device

A mass storage device that is not part of a permanent file family. Auxiliary devices can contain direct or indirect access permanent files.

BASIC

Beginner's All-purpose Symbolic Instruction Code is an elementary programming language available to the user. Also, a subsystem that uses the BASIC compiler.

Batch Job

The instructions and data that are submitted as a complete unit without further intervention on the user's part. The job can be punched on cards or created and submitted from a terminal.

Beginning-of-Information (BOI)

The start of the first programmer record in a file is known as the beginning-of-information. System information, such as tape labels on sequential files or indexes, does not affect the beginning-of-information.

Binary File

A noneditable file that contains a precompiled program.

Bit

An abbreviation of binary digit. It is a single digit, 0 or 1, in a binary number, and also represents the smallest unit of information. A central memory word (one storage location) contains 60 bits.

Byte

A group of bits. Unless prefixed (for example, a 6-bit byte), the term implies 8-bit groups. When used for encoding character data, a byte represents a single character.

Central Memory (CM)

The main storage device whose storage cells (words) can be addressed by a computer program and from which instructions and data can be loaded directly into registers. The instructions can be executed and the data can be manipulated from these registers.

Charge Number

An alphanumeric identifier the installation uses to allocate charges to individual users for system usage.

Command

A sequence of words and characters that call a system routine to perform a job step. The command must conform to format specifications and end with either a period or a right parenthesis. A command is sometimes called a control statement.

Control Statement

Refer to Command.

Dayfile

A chronological file created during job execution. It forms a permanent accounting and job history record. Dayfile messages are generated by operator action or when most commands are processed. A copy of the dayfile is printed with the output for each job. The user must explicitly request it in an interactive job.

Deadstart

The process of initializing the system by loading the operating system library programs and any of the product set from magnetic tape or disk. Deadstart recovery is reinitialization after system failure.

Default

A system-supplied option used when the user does not supply the option.

Direct Access File

A NOS permanent mass storage file that can be attached to a job. All changes to this file are made on the file itself rather than on a temporary copy of the file (compare with Indirect Access File).

DIS (Job Display)

A system peripheral processor program similar to system display (DSD) that provides communication between a job in central memory and the operator at the console. It permits the operator to control execution of the program through the console keyboard.

Display Code

A 6-bit character code set that represents alphanumeric and special characters.

DSD (System Display)

The operating system program that provides communication between the operator and the system by accepting control information typed on the console keyboard and by displaying to the operator information pertinent to all jobs known to the system. DSD is permanently assigned to peripheral processor 1.

End-of-File (EOF)

A boundary within a sequential file, but not necessarily the end of a file that can be referenced by name. The actual end of a named file is defined by EOI. For labeled tape, EOF and EOI (denoted by the EOF1 label) are the same. For multifile tape files, EOF and EOI do not correspond. In the product set manuals, an end-of-file is also referred to as an end-of-partition.

End-of-Information (EOI)

The end of data on a file. Information appearing after this point is not considered part of file data. In card decks, it is a card with a 6/7/8/9 multiple punch in column 1. On mass storage devices, it is the position of the last written data. On labeled tape, it is the EOF1 label. CYBER Record Manager defines end-of-information in terms of file residency and organization.

End-Of-Record (EOR)

An indicator that marks the end of a logical record. Also referred to as end-of-section.

Error Flag

A character or bit that signals the occurrence or presence of an error.

ESM

The extended semiconductor memory.

Execution

An input job is in execution after it is selected by the operating system and assigned to a control point. A job remains in execution until terminated, but it can be temporarily swapped or rolled out by the operating system.

Family Device

A mass storage permanent file device associated with a specific system. A family may consist of 1 to 63 logical devices. Normally, a system runs with one family of permanent file devices available. However, additional families may be introduced during normal operation. This enables users associated with the additional families to access their permanent files via the alternate family.

Family Name

Name of the permanent file storage device or set of devices on which all permanent files are stored. When a user requests a permanent file, the system looks for it on this family (group) of devices. Usually a system has only one family of permanent file devices, but it is possible to have alternate families in the system. Users may have to specify a family when they log in. The family name is given by an employer or instructor or by computer center personnel.

Field Length

The area in central memory allocated to a particular job; the only part of central memory that a job can directly access. Also the number of central memory words required to process a job.

File

A collection of information referred to by a file name (from one through seven alphanumeric characters). A user can create a file at the terminal or retrieve a file from permanent file storage for use during a terminal session.

File Access Category

A property of a permanent file used by the creator of the file on a secured system to restrict access of the file to a particular group of users. A secured system supports up to 32 access categories. Authorization can be given to use some, all, or none of those categories. Refer also to System Access Categories.

File Access Level

A property of each file on a secured system used to indicate the sensitivity of information contained on the file. A file is assigned the current job access level by default when it is created or stored; the file creator may specify any access level for that file that is within the set of access levels valid for the job, the system, the file creator, and (for interactive jobs) the communication line to the host mainframe. If a file is accessed on a secured system, the user must be validated for the access level of the file. Refer also to Access Level, Job Access Level, and Job Access Level Limits.

File Category

Each permanent file is assigned a category of private, semiprivate, or public.

File Count

A maximum number of permanent files allowed each user.

Flag

A character or bit that signals the occurrence or presence of a particular condition.

IAF

Refer to the Interactive Facility.

Indirect Access File

A NOS permanent file accessed by making a temporary copy of the file (GET or OLD command). A user creates or alters it by saving or substituting the contents of an existing temporary file (REPLACE or SAVE command). (Compare with Direct Access File.)

Input

Information flowing upline from terminal to host.

Input File

The system-defined file that contains the entire job the user submits for processing. It is also known as the job file.

Input Queue

A set of input files waiting to be assigned to control points by the operating system.

Interactive Facility (IAF)

An application that provides a terminal operator with interactive processing capability. The interactive facility makes terminal input/output and file input/output appear the same to an executing program.

Interactive Job

A job initiated from an interactive terminal.

Job

All activity associated with a terminal session from login to logoff.

Job Access Level

On a secured system, each job has an access level. This is the default access level that is assigned to files that are created or stored in the job. A job's initial access level is the lower access level limit for the job. The job's access level is automatically raised to the access level of any file from which information is read. The user can change the access level with the SETJAL command. Refer also to Job Access Level Limits.

Job Access Level Limits

An upper limit and a lower limit that determine the range of access levels that are valid for a particular job on a secured system. All files used in a given job must have an access level within the job's access level limits.

Job Sequence Name (JSN)

The unique, system-defined name assigned to every executing job or queued file. The JSN is a string of four alphabetic characters.

Job Status

A job attribute kept in the job's executing job table (EJT) entry. It is used by the system to determine whether a job is rolled in or rolled out. If the job is rolled out, job status indicates why it was rolled out.

Keyword

A symbol used within a command which identifies a specific function. It is one of the the predefined words.

Local File

Any file that is currently associated with a job. Local files include all temporary files and attached direct access files.

Local File Name

The file name assigned to a file while it is local (assigned) to a job. The name is contained in the local file name table.

Login

The procedure used to gain access to the system.

Logout

The procedure used to end a terminal session.

MODVAL

A validation file manager that creates and manages the VALIDUs file.

Network Access Method (NAM)

A software package that provides a generalized method of using a communications network for switching, buffering, queueing, and transmitting data.

Network Operator Utility (NETOU)

NAM application providing operator interface to CDCNET.

NOS

The network operating system.

Operating System

The set of system programs that controls the execution of computer programs and provides scheduling, error detection, input/output control, accounting, compilation, storage assignment, and other related services.

Order Dependent

Used to describe items that must appear in a specific order.

Order Independent

Used to describe items that need not appear in any specific order. Parameters, particularly those with keywords, may be order-independent.

Output

The information flowing downline from host to terminal.

Output File

The system-defined file that contains the output from job processing. It is also known as the print or punch file.

Parameter

A variable that is given a specific value for a particular purpose or process.

Password

A name or word entered during login to provide extra security for the user name. A unique password ensures that no one else can log into the system with that user name and access its files. A password is initially given by an employer, an instructor, or by computer center personnel.

Permanent File

A mass storage file that is cataloged by the system so that its location and identification are always known to the system. Permanent files cannot be destroyed accidentally during normal system operation. They are protected by the system from unauthorized access according to privacy controls specified when they are created.

Permanent File Family

The permanent files that reside on the family devices of a specific system.

Procedure

A user-defined set of instructions that can be referenced by name. The instructions consist of procedure directives and system commands.

PROFILa File

A system file that controls user accounting.

Project Epilogue

A program that is executed automatically at the end of an account block for which its related charge and project numbers are in effect. An epilogue program can be used to output resource usage information to a terminal user or a user's dayfile or to save information about the terminating account block on a permanent file for tracking by the master user.

Project Number

An alphanumeric identifier that may be required at installation for accounting and billing to a specific project. If it is required, the project number is entered during the login procedure. It is assigned by personnel at your installation.

Project Proloque

A program that is executed automatically at the beginning of an account block after its related charge and project numbers are validated, but before any user program processing begins. A proloque program can be used as a convenience to users of a project number for access of project files or output of messages to the user. It can also be used to perform further validation on a user before allowing use of a charge and project number or to restrict use of a project number to a single application executed as a proloque.

Screen Management Facility (SMF)

A subsystem that alters the performance characteristics of the Full Screen Editor (FSE). The absence or presence of SMF is not detectable by the user of FSE. Performance can be optimized by disabling SMF for small mainframes and interactive workloads, and by enabling SMF for large configurations and heavy workloads.

Secured System

A system in which a mandatory security mechanism has been enabled during deadstart. A secured system protects information by enforcing restrictions based on access levels and access categories, and restricts many sensitive system functions to security administrators.

Security Adminstrator

A secured system prevents users and operators from performing certain functions that could result in the unauthorized disclosure or modification of information. These functions can only be performed by a person who is designated a security administrator. A security administrator is always authorized to access the highest level of information stored on the system. This person performs functions in the areas of installation, user validation, system operation, and system maintenance.

Security Unlock Status

This status of the system console applies only to a secured system and must be set by a security administrator. The console must be in security unlock status in order for the security administrator to perform certain functions that are restricted on a secured system.

SMF

Refer to Screen Management Facility.

Subfamily

Each permanent file family consists of eight subfamilies, subfamily 0 though subfamily 7. The lower 3 bits of the user index identify the subfamily to which a user belongs.

System Access Categories

On a secured system, a set of access categories is set during level 0 deadstart. This set may consist of some, all, or none of the 32 possible access categories. While the system is running in security mode, a user may only use access categories that are within the set of system access categories.

System Access Levels

On a secured system, a range of access levels is set during level 0 deadstart. This range may contain some or all of the eight possible access levels. While the system is running, users may only use access levels that are within the range of system access levels.

System Resource Unit (SRU)

A unit of measurement of system usage. The number of SRUs includes the central processor time, memory usage, and input/output resources used for a given job.

Transaction Facility (TAF)

An application program that provides the transaction terminal with access to a data base. A terminal using TAF can enter, retrieve, and modify information in the data base.

Unified Extended Memory (UEM)

Extended memory that is available as an option for models 865, 875, and for 180-class machines. UEM differs from other types of extended memory in that it is a portion of central memory and not a separate memory unit.

Unsecured System

A system in which the multilevel security mechanism has not been enabled during deadstart. The restrictions based on access levels and access categories are not enforced on an unsecured system.

User Index

A unique 17-bit identifier associated with each user name. The user index is used by the permanent file manager to identify the device and catalog track for the user's permanent files.

User Job Name (UJN)

A one- to seven-character alphanumeric name you specify to replace the system defined JSN for a queued file or an executing job.

User Name

A name given to users by their employer, instructor, or computer center personnel. A user name has certain resources and privileges assigned to it. When logging in to the system, a user specifies his or her user name as identification to the system, so that it knows that that person is an authorized user and what resources he or she is entitled to use. A user name also represents a specific catalog in the permanent file system. All files that a user makes permanent are associated with his or her user name and this catalog.

Validation File

A file that contains validation information for all users (user names, passwords, resources allowed, and so on).

VALIDUs File

A system file used to control user validation.

VALINDs File

A system file used to control user indexes.

Word

A group of bits (or 6-bit characters) between boundaries imposed by the computer system. A word is 60 bits in length. The bits are numbered 59 through 0, starting from the left. A word is also composed of five 12-bit bytes, numbered 0 through 4 from the left.

# ACCOUNT DAYFILE MESSAGES B

This appendix lists account dayfile messages and the product, program, or deck that issued the message. The product, program, or deck is shown in parentheses.

- MCS (Message Control System)
- MSE (Mass Storage Extended Subsystem)
- NHP (Network Host Products)
- NOS (Network Operating System)
- RHP (PTF/QTF File Transfer Facilities)

Lowercase letters within a message are used to identify fields that are variable.

| Message | Product/Program |
|---|---|
| AASR, srus. | NOS/1RO |
| ABAA, appl, name 1, name 2. | NHP |
| ABAC, C1, username, familyname, appl.<br>ABAC, C2, snode, dnode. | NNP |
| ABAE, C1, username, familyname, appl.<br>ABAE, C2, snode, dnode. | NHP |
| ABAP, C1, username, familyname, terminalname.<br>ABAP, C2, application. | NHP/NVFTIAM |
| ABAR, appl, snode, dnode. | NHP |
| ABCN, chargenumber, projectnumber.<br>ABCN, SYSTEM. | NOS/CHARGE, CPM, OAP |
| ABEA, appl, name 1, name 2. | NHP |
| ABER, C1, username, familyname, terminalname. | NHP/NVFTIAM |
| ABIC, chargenumber, projectnumber, terminalname. | NHP/NVF<br>NOS/CHARGE |
| ABLQ, C1, jsn, yymmdd, hhmmss, dc.<br>ABLQ, C2 xxxxxx.xxxKUNS, sc. | NOS/DSP, 1DS,1TA |
| ABRE, appl. | NHP |
| ABSC, sc. | NOS/CHARGE |

| Message | Product/Program |
|---|---|
| ABST, system title. | NOS/REC |
| ABSV, system version. | NOS/REC |
| ABSY, yy/mm/dd. | NOS/REC,SFM |
| ABUN, username, familyname, terminalname. | NOS/CHARGE<br>NHP/NVFTIAM<br>RHP/PTFS |
| ACAS aname. | NOS/TLX |
| ACAB. | NOS/TLX |
| ACAE. | NOS/TLX |
| ACAF. | NOS/TLX |
| ACAI. | NOS/TLX |
| ACAR. | NOS/TLX |
| ACAU. | NOS/TLX |
| ACCN, chargenumber, projectnumber. | NOS/CHARGE,CPM |
| ACDT, DS, DATE. yy/mm/dd. | NOS/1DS |
| ACDT, DS, TIME, hh.mm.ss. | NOS/1DS |
| ACLK, jsn, pid, lid, ERR. | RHP/QTFI,QTFS,<br>MFLINK,PTFS |
| ACSC, sc, newjsn, sruunits. | NOS/CPM,1RI |
| ACSO, sruunits. | NOS/OAU |
| ACSR, sruunits. | NOS/CPM,1RI |
| ACUN, username, familyname. | NOS/CHARGE<br>RHP/PTFS |
| ADDI, est, familyname, dn. | NOS/IMS |
| ADDR, est, familyname, dn, lowerlvl, upperlvl. | NOS/MSM |
| ADDU, est, familyname, dn. | NOS/MSM |
| ADPD, est, packname, username. | NOS/MSM |
| ADPI, est, packname, username. | NOS/IMS |
| ADPM, est, packname, username, lowerlevl, upperlvl. | NOS/MSM |
| AEAA, C1, Appl, name 1, name 2.<br>AEAA, C2, xxxxxxSECS. | NHP |

| Message | Product/Program |
|---|---|
| AEAP, C1, username, familyname, terminalname.<br>AEAP, C2, application, xxxxxxSECS. | NHP/NVFTIAM |
| AEQP, C1, jsn, yymmdd, hhmmss, dc.<br>AEQP, C2, xxxxxx.xxxKUNS, sc. | NOS/ODQ |
| AERR, ty. | NOS/1AJ |
| AESR, sruunits. | NOS/QAP,1AJ |
| AESY, yy/mm/dd. | NOS/SFM |
| AEUN, C1, username, familyname, terminalname.<br>AEUN, C2, xxxxxxSECS. | NHP/NVFTIAM |
| AMAS, est, vsn. | NOS/1MT |
| AMRT, est, type. | NOS/1MT |
| APPN.<br>APPN, packname. | NOS/CPM<br>NOS/CPM |
| ARRQ, C1, jsn, yymmdd, hhmmss, dc.<br>ARRQ, C2, xxxxxx.xxxKUNS, sc. | NOS/DSP,QFM |
| ARSY, 1n, yy/mm/dd. | NOS/REC |
| ARUN, username, failyname. | NOS/1MA |
| ASTD, username, familyname. | NOS/1MA |
| ASTH, username, familyname. | NOS/1MA |
| ASTP, username, familyname. | NOS/1MA |
| ASTR, username, familyname. | NOS/1MA |
| ASTT, username, familyname. | NOS/1MA |
| ASTU, username, familyname. | NOS/1MA |
| AUSR, sruunits. | NOS/CPM,1AJ,1RO |
| MFFI, filename, newlevel. | NOS/LFM,PFM |
| MJJI, oldlevel, newlevel. | NOS/CPM |
| MPNF, filename, username, packname. | NOS/PFM |
| MSEQ, est, lowerlevel, upperlevel. | NOS/1DS |
| MSOT, ot, lowerlevel, upperlevel. | NOS/1DS |
| MSSA, username. | NOS/1DS |
| MSSI, username. | NOS/1DS |
| MUPW. | NOS/MODVAL |

| Message | Product/Program |
|---|---|
| MUPX. | NOS/MODVAL |
| MVCU, ifamily, iusernm, mfamily, musernm. | NOS/MODVAL |
| MVDU, ifamily, iusernm, mfamily, musernm. | NOS/MODVAL |
| MVUU, ifamily, iusernm, mfamily, musernm. | NOS/MODVAL |
| SANW, application, jsn. | NHP |
| SBER, application, jsn. | NHP |
| SBNW, application, jsn. | NHP |
| SCAP, C1, source_service.<br>SCAP, C2, destination_service.<br>SCAP, C3, di_name_or_address.<br>SCAP, C4, mmm,prt,vvvv.<br>SCAP, C5, ttttttrrrrrrssssss.<br>SCAP, C6, cccccc.<br>SCAP, C7, connect_time. | NHP/CSESDA |
| SCLI, node, C1, port, ttttttllllll.<br>SCLI, node, C2, sssssscccccc.<br>SCLI, node, C3, bbbbbbpppppppaaaaaa. | NHP/CSESES |
| SCMT, est, pppppppp, t. | NOS/1MT |
| SCNQ, node, C1, ccccccddddddllllll.<br>SCNQ, node, C2, gggggggrrrrrrssssss.<br>SCNQ, node, C3 pppppppiiiiiinnnnnn.<br>SCNQ, node, C4, wwwwww. | NHP/CSESES |
| SCTE, C1, device_name.<br>SCTE, C2, device_type.<br>SCTE, C3, destination_service.<br>SCTE, C4, di_name_or_address.<br>SCTE, C5, lim,prt,vvvv.<br>SCTE, C6, ttttttrrrrrrssssss.<br>SCTE, C7, cccccc.<br>SCTE, C8, connect_time. | NHP/CSESDA |
| SCTU, node, C1, port, ttttttllllll.<br>SCTU, node, C2, sssssscccccc.<br>SCTU, node, C3, bbbbbb. | NHP/CSESES |
| SDAU, family/usernam/seqno/fvsn, vsn. | NOS/TFM,TFSP |
| SDCR, family/usernam/seqno/fvsn, yy/mm/dd.<br>SDCR, family/usernam/seqno/fvsn, .<br>SDCR, family/usernam/seqno/fvsn. | NOS/TFM,TFSP |
| SDAD, family, vsn, prn, ssssss. | NOS/TFSP |
| SDRM, family, vsn. | NOS/TFSP |
| SDRV, family, vsn, prn, ssssss. | NOS/TFSP |
| SDAM, family, usernam, fvsn, ssssss. | NOS/TFSP |

| Message | Product/Program |
|---|---|
| SDRA, family/usernam/seqno/vsn, tfd/passwor.<br>SDRA, family/usernam/seqno/vsn, tfd. | NOS/TFSP |
| SDRB, familywlogical-file-identxphysical-file-idt. | NOS/TFSP |
| SDRC, family/controlwrdy/chrgnumber,mulsidz. | NOS/TFSP |
| SEMC, xxxxxx.xxxKUNS. | MCS/MCS$RNA,MCS$Q02 |
| SENW, application, jsn. | NHP |
| SIAD. | NOS/DAYFILE,STIMULA |
| SIDT, yy/mm/dd. | NOS/1MB |
| SISC. | NOS/OAV |
| SISC, nn. | NOS/OAV |
| SIUN, username. | NOS/CPM,DSP |
| SMBD, filename/userindex/familyname. | MSE |
| SMBS, filename/userindex/familyname. | MSE |
| SMED, filename/userindex/length/code. | MSE |
| SMES, filename/userindex/length/code. | MSE |
| SMLD, SM=sm, CSN=csn, ID=cm. | MSE |
| SMUL, SM=sm, CSN=csn, ID=cm. | MSE |
| SOAS, filename, userindex, familypack, vsn, version, retries. | NOS/PFROD |
| SOBF, lfn, recorded_filename, version. | NOS/1OD |
| SOBS, filename, userindex, familypack, vsn, version, retries. | NOS/MAGNET |
| SOBV, est, vsn. | NOS/LUD |
| SODF, C1, lfn, recorded_filename, version. | NOS/1OD |
| SODF, C2, prus_transferred, access, retries. | NOS/1OD |
| SOEF, C1, lfn, recorded_filename, version. | NOS/1OD |
| SOEF, C2, prus_transferred, access, retries. | NOS/1OD |
| SOES, filename, userindex, familypack, vsn, version, retries. | NOS/PFROD |
| SOEV, est, vsn. | NOS/LUD |
| SORF, C1, recorded_filename, version, access, unterminated_file. | NOS/LUD |
| SORF, C2, partition, vsn, parallel_volumes, prus. | NOS/LUD |
| SORS, filename, userindex, familypack. | NOS/PFM |

| Message | Product/Program |
|---|---|
| SOVA, vsn, familypack, requests. | NOS/PFROD |
| SPAC, filename, username, packname. | NOS/PFM |
| SPAL, filename, username, packname. | NOS/PFM |
| SPAP, filename, username, packname. | NOS/PFM |
| SPAS, filename, username, packname. | NOS/PFM |
| SPAT, filename, username, packname. | NOS/PFM |
| SPCG, filename, username, packname. | NOS/PFM |
| SPCT, filename, username, packname. | NOS/PFM |
| SPDD, filename, username, packname. | NOS/PFM |
| SPDF, filename, username, packname. | NOS/PFM |
| SPDI, filename, username, packname. | NOS/PFM |
| SPDP, filename, username, packname. | NOS/PFM |
| SPGT, filename, username, packname. | NOS/PFM |
| SPPG, filename, username, packname. | NOS/PFM |
| SPPM, filename, username, packname. | NOS/PFM |
| SPRP, filename, username, packname. | NOS/PFM |
| SPRS, filename, username, packname. | NOS/PFM |
| SPSA, filename, username, packname. | NOS/PFM |
| SPSD, filename, username, packname. | NOS/PFM |
| SPSF, filename, username, packname. | NOS/PFM |
| SPSP, filename, username, packname. | NOS/PFM |
| SPSV, filename, username, packname. | NOS/PFM |
| SPUA, filename, username, packname. | NOS/PFM |
| SPUG, filename, username, packname. | NOS/PFM |
| SPUR, filename, username, packname. | NOS/PFM |
| STAS, filename, userindex, familypack, vsn, retries. | NOS/PFAM |
| STBS, filename, userindex, familypack, vsn, retries. | NOS/MAGNET |
| STES, filename, userindex, familypack, vsn, retries. | NOS/PFAM |
| STRS, filename, userindex, familypack. | NOS/PFM |
| STTA, vsn, familypack, requests. | NOS/PFAM |

| Message | Product/Program |
|---|---|
| UBAU, xxxx. | NOS/CPM |
| UCAC, xxxxxx.xxxUNTS. | NOS/OAU |
| UCAD, xxxxxx.xxxKUNS. | NOS/OAU |
| UCCI, xxxxxx.xxxKCHS. | NOS/1TA |
| UCCO, xxxxxx.xxxKCHS. | NOS/1TA |
| UCCR, mi, eqn, xxxxxx.xxxKCDS. | NOS/QAP,1AJ |
| UCCT, xxxxxx.xxxKCHS. | NOS/1TA |
| UCLP, mi, eqn, xxxxxx.xxxKLNS. | NOS/QAP |
| UCLS, ty, xxxxxx.xxxKUNS. | RHP/QTF1,QTFS<br>MFLINK,PTFS |
| UCLV, mi, eqn, xxxxxx.xxxKLNS. | NOS/QAP |
| UCMP, xxxxxx.xxxKUNS. | NOS/OAU |
| UCMS, xxxxxx.xxxKUNS. | NOS/OAU |
| UCMT, xxxxxx.xxxKUNS. | NOS/OAU |
| UCOD, xxxxxx.xxxKUNS. | NOS/OAU |
| UCPC, mi, eqn, xxxxxx.xxxKCDS. | NOS/QAP |
| UCPF, xxxxxx.xxxKUNS. | NOS/OAU |
| UCPL, mi, eqn, xxxxxx.xxxKPLS. | NOS/QAP |
| UDAC, xxxxxx.xxxUNTS. | NOS/1RI |
| UDAD, xxxxxx.xxxKUNS. | NOS/CPM |
| UDCI, xxxxxx.xxxKCHS. | NOS/CPM |
| UDCO, xxxxxx.xxxKCHS. | NOS/CPM |
| UDCP, xxxxxx.xxxSECS. | NOS/CPM |
| UDCT, xxxxxx.xxxKCHS. | NOS/CPM |
| UDMP, xxxxxx.xxxKUNS. | NOS/CPM |
| UDMS, xxxxxx.xxxKUNS. | NOS/CPM |
| UDMT, xxxxxx.xxxKUNS. | NOS/CPM |
| UDOD, xxxxxx.xxxKUNS. | NOS/CPM |
| UDPF, xxxxxx.xxxKUNS. | NOS/CPM |
| UEAC, xxxxxx.xxxUNTS. | NOS/1AJ |

| Message | Product/Program |
|---|---|
| UEAD, xxxxxx.xxxKUNS. | NOS/1AJ |
| UEAU, xxxxxx.xxxUNTS. | NOS/1AJ |
| UECI, xxxxxx.xxxKCHS. | NOS/1PJ |
| UECO, xxxxxx.xxxKCHS. | NOS/1PJ |
| UECP, xxxxxx.xxxSECS. | NOS/1AJ |
| UECT, xxxxxx.xxxKCHS. | NOS/1AJ |
| UEMP, xxxxxx.xxxKUNS. | NOS/1AJ |
| UEMS, xxxxxx.xxxKUNS. | NOS/1AJ |
| UEOD, xxxxxx.xxxKUNS. | NOS/1AJ |
| UEMT, xxxxxx.xxxKUNS. | NOS/1AJ |
| UEPF, xxxxxx.xxxKUNS. | NOS/1AJ |

# INDEX

Comments (continued from other side)

Please fold on dotted line;
seal edges with tape only.

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## NOS Version 2 Administration Handbook 60459840 E

We would like your comments on this manual to help us improve it. Please take a few minutes to fill out this form.

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- ☐ For comprehensive reference
- ☐ For quick look-up
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| Yes | Somewhat | No | |
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| ☐ | ☐ | ☐ | Does it tell you what you need to know about the topic? |
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